BOOK III

ALTHOUGH the whole course of life up to adolescence is a time of weakness, there is a point during this first age when the growth of strength has passed that of need, and the growing animal, still weak absolutely, becomes strong relatively. His needs are not all developed, and his present strength is more than sufficient to provide for those he has. As a man he would be very weak; as a child he is very strong.

From where does man's weakness come? From the inequality between his strength and his desires. It is our passions that make us weak, because to satisfy them we would need more strength than nature gives us. Therefore, diminish desires, and you will increase strength. He who is capable of more than he desires has strength left over; he is certainly a very strong being. This is the third stage of childhood, and the one about which I now must speak. I continue to call it *childhood* for want of a term to express it, for this age approaches adolescence without yet being that of puberty.

At twelve or thirteen the child's strength develops far more rapidly than his needs. The most violent, the most terrible of these needs has not yet made itself felt in him. Its very organ remains in a state of imperfection and, in order to emerge from it, seems to wait only for his will to force it to do so. The child is hardly sensitive to injury from the air and the seasons, and his nascent heat takes the place of clothing. His appetite takes the place of seasoning; all that can nourish is good at his age. If he is tired, he stretches out on the earth and sleeps. He sees himself everywhere surrounded by all that is necessary to him. No imaginary need torments him. Opinions can have no effect on him. His desires go no farther than his arms. Not only is he self-sufficient, he has strength beyond what he needs. It is the only time in his life when this will be the case.

I anticipate the objection. It will not be said that the child has more needs than I give him, but it will be denied that he has the strength I attribute to him. It will not be remembered that I am speaking of my pupil rather than of those walking dolls who travel from one room to another, who plow in a box and bear cardboard loads. I will be told

that virile strength is manifested only in virility, that the vital spirits prepared in the appropriate vessels and spread through the whole body can alone give to muscles the consistency, the activity, the tone, and the resiliency from which true strength results. This is armchair philosophy; but I appeal to experience. I see big boys in your fields plow, hoe, drive a team, load a barrel of wine, and control a cart just like their fathers. One would take them for men if the sound of their voices did not betray them. Even in our cities, young laborers, ironworkers, toolmakers, and blacksmiths are almost as robust as the masters and would be hardly less skilled if they had been trained in time. If there is a difference, and I admit that there is, it is much less, I repeat, than the difference between a man's impetuous desires and a child's limited desires. Moreover, the question here is not only one of physical strength but particularly one of the mental strength and capacity which supplements physical strength or directs it.

Although this interval during which the individual is capable of more than he desires is not the time of his greatest absolute strength, it is, as I have said, the time of his greatest relative strength. It is the most precious time of life, a time which comes only once, a very short time, one even shorter—as will be seen in what follows—because of the importance of his using it well.

What will he do, then, with this surplus of faculties and strength, of which he has too much at present and which he will lack at another age? He will try to use it in ways which can be of profit to him when needed. He will channel, so to speak, the overflow of his present being into the future. The robust child will make provisions for the weak man, but he will not store them in coffers that can be stolen from him or in barns that are alien to him. In order to appropriate truly his acquisitions, he will house them in his arms and in his head; he will house them in himself. This is, therefore, the time of labors, of instruction, of study. And note that it is not I who arbitrarily make this choice. It is nature itself that points to it.

Human intelligence has its limits; and not only is it impossible for a man to know everything, he cannot even know completely the little that other men know. Since the contradictory of each false proposition is a truth, the number of truths is as inexhaustible as that of errors. A choice must, therefore, be made of the things that ought to be taught as well as of the proper time for learning them. Of the fields of learning that are available to us, some are false, others are useless, others serve to feed the pride of the man who possesses them. The small number of those which really contribute to our well-being is alone worthy of the researches of a wise man and, consequently, of a child whom one wants to make wise. It is a question not of knowing what is but only of knowing what is useful.

From this small number it is necessary to remove the truths which demand for their comprehension an understanding already completely formed: those that presuppose a knowledge of man's relations which a child cannot acquire; those that, although true in themselves, dispose an inexperienced soul to think falsely about other subjects.

Thus we are reduced to a very small circle relative to the existence

of things. But what an immense sphere for the scope of a child's mind this circle still forms! Darkness of human understanding, what reckless hand dared to touch your veil? What abysses I see opened up around this young unfortunate by our vain sciences! O tremble, you, who are going to lead him in these perilous paths and raise nature's sacred curtain before his eyes. Be sure, in the first place, of his balance and yours; fear lest one or the other, and perhaps both of you, get dizzy. Fear the specious attraction of lies and the intoxicating vapors of pride. Remember, remember constantly that ignorance never did any harm, that error alone is fatal, and that one is misled not by what he does not know but by what he believes he knows.

The child's progress in geometry can serve you as a test and a certain measure of the development of his intelligence. But as soon as he can discern what is useful and what is not, it is important to use much tact and art to lead him to speculative studies. Do you, for example, want him to look for a proportional mean between two lines? Begin by arranging it so that he has to find a square equal to a given rectangle. If the problem has to do with two proportional means, you would first have to interest him in the problem of doubling a cube, etc. See how we gradually approach moral notions which distinguish good and bad! Up to now we have known no law other than that of necessity. Now we are dealing with what is useful. We shall soon get to what is suitable and good.

The same instinct animates man's diverse faculties. To the activity of the body which seeks development succeeds the activity of the mind which seeks instruction. At first children are only restless; then they are curious; and that curiosity, well directed, is the motive of the age we have now reached. Let us always distinguish between the inclinations which come from nature and those which come from opinion. There is an ardor to know which is founded only on the desire to be esteemed as learned; there is another ardor which is born of a curiosity natural to man concerning all that might have a connection, close or distant, with his interests. The innate desire for well-being and the impossibility of fully satisfying this desire make him constantly seek for new means of contributing to it. This is the first principle of curiosity, a principle natural to the human heart, but one which develops only in proportion to our passions and our enlightenment. Picture a philosopher relegated to a desert island with instruments and books, sure of spending the rest of his days there. He will hardly trouble himself any longer about the system of the world, the laws of attraction, differential calculus. He will perhaps not open a single book in his life. But never will he refrain from visiting the last nook and cranny of his island, however large it may be. Let us, therefore, also reject in our first studies the kinds of knowledge for which man does not have a natural taste and limit ourselves to those instinct leads us to seek.

The island of humankind is the earth. The most striking object to our eyes is the sun. As soon as we begin to get a distance on ourselves, our first observations must concern them. Thus the philosophy of almost all savage peoples turns solely on imaginary divisions of the earth and on the divinity of the sun.

"What a disparity," it will perhaps be said. "A while ago we were concerned only with what touches us, with what immediately surrounds us. All of a sudden here we are traveling around the globe and leaping to the ends of the universe!" This disparity is the effect of the development of our strength and the bent of our mind. In the state of weakness and insufficiency concern for our preservation concentrates us within ourselves. In the state of power and strength the desire to extend our being takes us out of ourselves and causes us to leap as far as is possible for us. But since the intellectual world is still unknown to us, our thought does not go farther than our eyes, and our understanding is extended only along with the space it measures.

Let us transform our sensations into ideas but not leap all of a sudden from objects of sense to intellectual objects. It is by way of the former that we ought to get to the latter. In the first operations of the mind let the senses always be its guides. No book other than the world, no instruction other than the facts. The child who reads does not think, he only reads; he is not informing himself, he learns words.

Make your pupil attentive to the phenomena of nature. Soon you will make him curious. But to feed his curiosity, never hurry to satisfy it. Put the questions within his reach and leave them to him to resolve. Let him know something not because you told it to him but because he has understood it himself. Let him not learn science but discover it. If ever you substitute in his mind authority for reason, he will no longer reason. He will be nothing more than the plaything of others' opinion.

You want to teach geography to this child, and you go and get globes, cosmic spheres, and maps for him. So many devices! Why all these representations? Why do you not begin by showing him the object itself, so that he will at least know what you are talking to him about?

One fine evening we go for a walk in a suitable place where a broad, open horizon permits the setting sun to be fully seen, and we observe the objects which make recognizable the location of its setting. The next day, to get some fresh air, we return to the same place before the sun rises. We see it announcing itself from afar by the fiery arrows it launches ahead of it. The blaze grows; the east appears to be wholly in flames. By their glow one expects the star for a long time before it reveals itself. At every instant one believes that he sees it appear. Finally one sees it. A shining point shoots out like lightning and immediately fills all of space. The veil of darkness is drawn back and falls. Man recognizes his habitat and finds it embellished. The verdure has gained a new vigor during the night. The nascent day which illuminates it, the first rays which gild it, show it covered by a shining web of dew which reflects the light and the colors to the eye. The birds in chorus join together in concert to greet the father of life. At that moment not a single one keeps quiet. Their chirping, still weak, is slower and sweeter than during the rest of the day; it has the feel of the languor of a peaceful awakening. The conjunction of these objects brings to the senses an impression of freshness which seems to penetrate to the soul. There is here a half-hour of enchantment which no man can resist. So great, so fair, so delicious a spectacle leaves no one cold.

Full of the enthusiasm he feels, the master wants to communicate

it to the child. He believes he moves the child by making him attentive to the sensations by which he, the master, is himself moved. Pure stupidity! It is in man's heart that the life of nature's spectacle exists. To see it, one must feel it. The child perceives the objects, but he cannot perceive the relations linking them; he cannot hear the sweet harmony of their concord. For that is needed experience he has not acquired; in order to sense the complex impression that results all at once from all these sensations, he needs sentiments he has not had. If he has not long roamed arid plains, if burning sands have not scorched his feet, if the suffocating reflections of stones struck by the sun have never oppressed him, how will he enjoy the cool air of a fine morning? How will the fragrances of the flowers, the charm of the verdure, the humid vapors of the dew, and the soft and gentle touch of the grass underfoot enchant his senses? How will the song of the birds cause a voluptuous emotion in him, if the accents of love and pleasure are still unknown to him? With what transports will he see so fair a day dawning, if his imagination does not know how to paint for him those transports with which it can be filled? Finally, how can he be touched by the beauty of nature's spectacle, if he does not know the hand responsible for adorning it?

Do not make speeches to the child which he cannot understand. No descriptions, no eloquence, no figures, no poetry. It is not now a question of sentiment or taste. Continue to be clear, simple, and cold. The time for adopting another kind of language will come only too soon.

Raised in the spirit of our maxims, accustomed to draw all his instruments out of himself and never to have recourse to another person before he has himself recognized his insufficiency, he examines each new object he sees for a long time without saying anything. He is pensive, and not a questioner. Be satisfied, therefore, with presenting him with objects opportunely. Then, when you see his curiosity sufficiently involved, put to him some laconic question which sets him on the way to answering it.

On this occasion, after having contemplated the rising sun with him, after having made him notice the mountains and the other neighboring objects in that direction, after having let him chat about it at his ease, keep quiet for a few moments like a man who dreams, and then say to him, "I was thinking that yesterday evening the sun set here and that this morning it rose there. How is that possible?" Add nothing more. If he asks you questions, do not respond to them. Talk about something else. Leave him to himself, and be sure that he will think about it.

For a child to get accustomed to being attentive and for him to be strongly impressed by some truth involving objects of sense, he has to worry over it for a few days before he discovers it. If he does not conceive of this one adequately in this way, there is a means of making it even more evident to his senses; and that means is to turn the question around. If he does not know how the sun gets from its setting to its rising, he knows at least how it gets from its rising to its setting. His eyes alone teach him that. Clarify, therefore, the former question by the latter. Either your pupil is absolutely stupid, or the analogy is too clear to be able to escape him. This is his first lesson in cosmography.[1]

Since we always proceed slowly from one idea based on the senses to another, we familiarize ourselves with one for a long time before going on to another, and, finally, we never force our pupil to be attentive; it is a long way from this first lesson to knowledge of the path of the sun and the shape of the earth. But since all the apparent movements of the celestial bodies depend on the same principle and the first observation leads to all the others, less effort, although more time, is needed to get from a diurnal revolution to the calculation of eclipses than is needed to understand day and night well.

Since the sun turns around the earth, it describes a circle, and every circle must have a center. We already know that. This center cannot be seen, for it is at the heart of the earth. But one can mark on its surface two points which correspond to it. A spike passing through the three points and lengthened up to the heavens on both sides will be the axis of the earth and of the sun's daily movement. A round top turning on its tip represents the heavens turning on their axis; the top's two tips are the two poles. The child will be delighted to know one of them. I show it to him on the tail of the Little Bear. This is our entertainment for the night. Little by little he gains familiarity with the stars, and from there is born the first taste for knowing the planets and observing the constellations.

We have seen the sun rising on Midsummer Day. We also go to see it rising on Christmas Day or some other fair winter day, for you know that we are not lazy and that we make a game of braving the cold. I am careful to make this second observation in the same place where we made the first; and, provided that some skill has been used in preparing the observation, one or the other will not fail to cry out, "Oh, oh! Here is something funny! The sun does not rise anymore in the same place. Here are our old markers, and now it is rising over there, etc. . . . there is, then, a summer east and a winter east, etc. . . ." Young master, you are now on your way. These examples ought to suffice for you to teach the celestial sphere very clearly while taking the earth as the earth and the sun as the sun.

In general, never substitute the sign for the thing except when it is impossible for you to show the latter, for the sign absorbs the child's attention and makes him forget the thing represented.

The armillary sphere [2] appears to me an ill-conceived device and poorly proportioned in its execution. This confusion of circles and the bizarre figures with which they are labeled give it the air of a sorcerer's book which scares off a child's mind. The earth is too small; the circles are too big and too numerous; some of them, like the colures,[3] are perfectly useless. Each circle is larger than the earth; the thickness of the cardboard gives them an air of solidity which causes them to be taken for really existing circular masses; and when you tell the child these circles are imaginary, he does not know what he sees; he no longer understands.

We never know how to put ourselves in the place of children; we do not enter into their ideas; we lend them ours, and, always following our own reasonings, with chains of truths we heap up only follies and errors in their heads.

There is a dispute about the choice of analysis or synthesis for studying the sciences. It is not always necessary to choose. Sometimes one can use both resolution and combination in the same researches and guide the child by the method of instruction when he believes he is only analyzing. Then if both were used at the same time, they would serve as reciprocal proofs. Starting at the same time from the two opposite points, without thinking he is traveling the same road, he would be quite surprised to meet himself, and this surprise could only be very agreeable. I would, for example, want to take geography by its two extremes and join to the study of the globe's revolutions the measurement of its parts, beginning with the place where one lives. While the child studies the celestial sphere and is thus transported into the heavens, lead him back to the division of the earth and show him first his own habitat.[4]

His two first points of geography will be the city in which he dwells and his father's country house; then will come the intermediate places, then the neighboring rivers, and finally the sun's position and the way of orienting oneself by it. This is the meeting place. Let him make a map of all these things himself, a very simple map, at first formed by two objects alone, to which he adds the others little by little to the extent that he knows or estimates their distance and their position. You see already what an advantage we have procured for him in putting a compass in his eyes.

In spite of that, he will doubtless have to be guided a little—but very little, and without its becoming apparent. If he makes a mistake, let him do so; do not correct his errors. Wait in silence until he is ready to see and correct them himself; or, at most, on a favorable occasion carry out some operation which will make him aware of them. If he never made mistakes, he would not learn so well. Moreover, the goal is not that he know exactly the topography of the region, but that he know the means of learning about it. It is of little importance that he have maps in his head, provided that he is able to get a good conception of what they represent, and that he has a distinct idea of the art which serves to draw them. See the difference there already is between your pupils' knowledge and mine's ignorance! They know maps, and he makes them. Here are new ornaments for his room.

Remember always that the spirit of my education consists not in teaching the child many things, but in never letting anything but accurate and clear ideas enter his brain. Were he to know nothing, it would be of little importance to me provided he made no mistakes. I put truths into his head only to guarantee him against the errors he would learn in their place. Reason and judgment come slowly; prejudices come in crowds; it is from them that he must be preserved. But if you look at science in itself, you enter into a bottomless sea, without shores, full of reefs. You will never get away. When I see a man, enamoured of the various kinds of knowledge, let himself be seduced by their charm and run from one to the other without knowing how to stop himself, I believe I am seeing a child on the shore gathering shells and beginning by loading himself up with them; then, tempted by those he sees next, he throws some away and picks up others, until, over-

whelmed by their multitude and not knowing anymore which to choose, he ends by throwing them all away and returning empty-handed.

During the first age time was long. We sought only to waste it for fear of making bad use of it. Now it is exactly the opposite, and we do not have enough time to do everything which would be useful. Reflect that the passions are approaching, and that as soon as they knock on the door, your pupil will no longer pay attention to anything but them. The peaceful age of intelligence is so short, it passes so rapidly, it has so many other necessary uses, that it is folly to wish that it suffice for making a child learned. The issue is not to teach him the sciences but to give him the taste for loving them and methods for learning them when this taste is better developed. This is very certainly a fundamental principle of every good education.

Now is also the time to accustom him little by little to paying continual attention to the same object. But this attention ought always to be produced by pleasure or desire, never by constraint. Great care must be taken that it does not become a burden to him and get to the point of boredom. Always, therefore, keep on the lookout and, whatever you do, stop everything before he gets bored, for it is never as important that he learn as that he do nothing in spite of himself.

If he questions you himself, answer enough to feed his curiosity, but not so much as to sate it. Above all, when you see that instead of questioning for the sake of instruction he is beating around the bush and overwhelming you with silly questions, stop immediately, with the certainty that now he cares no longer about the thing but about subjecting you to his interrogation. You must pay less attention to the words he pronounces than to the motive which causes him to speak. This warning, less necessary before now, becomes of the greatest importance when the child begins to reason.

There is a chain of general truths by which all the sciences are connected with common principles out of which they develop successively. This chain is the method of philosophers. We are not dealing with it here. There is another entirely different chain by which each particular object attracts another and always shows the one that follows. This order, which fosters by means of constant curiosity the attention that they all demand, is the one most men follow and, in particular, is the one required for children. In orienting ourselves to draw our maps, we had to draw meridians. Two points of intersection between the equal shadows of morning and evening provide an excellent meridian for an astronomer of thirteen.[5] But these meridians disappear. Time is needed to draw them. They subject one to working always in the same place. So much care, so much constraint would end by boring him. We foresaw it. We provide for it in advance.

Here I am once again in my lengthy and minute details. Reader, I hear your grumbling, and I brave it. I do not want to sacrifice the most useful part of this book to your impatience. Make your decision about my delays, for I have made mine about your complaints.

A long time ago my pupil and I had noticed that amber, glass, wax, and various other bodies when rubbed attracted straws and that others did not attract them. By chance we find one which has a still more

singular virtue, that of attracting at some distance—without being rubbed—shavings and other bits of iron. How long this quality entertains us without our being able to see anything more in it! Finally, we find that the iron itself acquires this quality from the lodestone when drawn across it in any single direction. One day we go to the fair; [6] a magician attracts a wax duck floating in a tub of water with a piece of bread. Although we are quite surprised, we nevertheless do not say, "He is a sorcerer," for we do not know what a sorcerer is. Constantly struck by effects whose causes we do not know, we are in no hurry to make any judgments, and we remain at rest in our ignorance until we happen to find the occasion to escape it.

After returning home, by dint of talking about the duck at the fair, we get it into our heads to imitate it. We take a good, well-magnetized needle; we surround it with white wax that we do our best to shape in the form of a duck, with the needle going through the body and its point constituting the bill. We put the duck in the water, we bring the top part of a key close to the bill, and we see with a joy easy to understand that our duck follows the key exactly as the one at the fair followed the piece of bread. To observe the direction the duck faces when left at rest in the water is something we can do another time. As for now, busy with our plan, we do not want more.

The very same evening we return to the fair with bread ready in our pockets, and as soon as the magician does his trick, my little doctor, who was hardly able to contain himself, says to him that this trick is not difficult and that he himself will do as much. He is taken at his word. Immediately he pulls the bread with the piece of iron hidden in it from his pocket. On approaching the table, his heart thumps. Practically quaking, he holds out the bread. The duck comes and follows him. The child cries out and shivers with delight. At the crowd's clapping and acclamation he gets dizzy; he is beside himself. The mountebank, confounded, comes nevertheless and embraces him, congratulates him, and begs the child to honor him again by his presence the next day, adding that he will make an effort to gather a still larger crowd to applaud his skill. My proud little naturalist wants to chatter. But I immediately shut him up and take him away covered with praise.

The child counts the minutes till the next day with a ridiculous excitement. He invites everyone he meets; he would want the whole of humankind to be witness to his glory. He hardly can wait for the hour. He is ahead of time; we fly to the appointment. The hall is already full. On entering, his young heart swells. Other games are going to be first. The magician surpasses himself and does surprising things. The child sees nothing of all that. He is agitated; he sweats; he is hardly able to breathe. He spends his time handling the piece of bread in his pocket with a hand trembling with impatience. Finally his time comes. The master announces him to the public with pomp. He comes forward with a bit of shame; he takes out his bread and . . . new vicissitude of things human! The duck, so responsive the day before, has turned wild today. Instead of offering its bill, it turns tail and flees. It avoids the bread and the hand offering it with as much care as it followed them previously. After countless useless attempts and constantly being jeered

at, the child complains, says that he is being deceived, that another duck has been substituted for the first one; he defies the magician to attract this one.

The magician, without responding, takes a piece of bread and offers it to the duck. Immediately the duck follows the bread and comes toward the retreating hand. The child takes the same piece of bread, but far from succeeding better than before, he sees the duck make fun of him and do pirouettes all around the tub. He finally steps back in confusion and no longer dares to expose himself to the jeers.

Then the magician takes the piece of bread the child has brought and uses it with as much success as his own. He pulls the iron out of it in front of everyone. Another laugh at our expense. Then, with the bread thus emptied, he attracts the duck as before. He does the same thing with another piece cut in front of everyone by another's hand. He does the same with his glove, the tip of his finger. Finally he moves away to the middle of the room and in the emphatic tone peculiar to such people, declaring that his duck will obey his voice no less than his gesture, he speaks to it, and the duck obeys. He tells it to go right and it goes right, to return and it returns, to turn and it turns. The movement is as prompt as the order. The redoubled applause is that much more of an affront to us. We escape unnoticed and shut ourselves up in our room without going to recount our successes to everyone as we had planned.

The next morning there is a knock at our door. I open it, and there is the magician. Modestly he complains of our conduct. What did he do to us to make us want to discredit his games and take away his livelihood? What is so wonderful about the art of attracting a wax duck to make it worth purchasing this honor at the expense of an honest man's subsistence? "My faith, messieurs, if I had some other talent by which to live, I would hardly glorify myself with this one. You should have believed that a man who has spent his life practicing this paltry trickery knows more about it than do you who have devoted only a few moments to it. If I did not show you my master strokes right off, it is because one ought not to be in a hurry to show off giddily what one knows. I am always careful to keep my best tricks for the proper occasion; and after this one I have still others to stop tactless young men. Finally, messieurs, I come out of the goodness of my heart to teach you the secret that perplexed you so. I beg you not to abuse it to my hurt and to be more restrained the next time."

Then he shows us his device, and we see with the greatest surprise that it consists only of a strong lodestone, well encased in soft iron, which a child hidden under the table moved without being noticed.

The man puts his device away, and, after giving him our thanks and apologies, we wish to make him a present. He refuses it. "No, messieurs, I am not pleased enough with you to accept your gifts. I leave you obliged to me in spite of yourselves. It is my only vengeance. Learn that there is generosity in every station. I get paid for my tricks and not my lessons."

In leaving, he addresses a reprimand to me explicitly and out loud. "I willingly excuse," he says to me, "this child. He has sinned only from

ignorance. But you, monsieur, who ought to know his mistake, why did you let him make it? Since you live together, as the elder you owe him your care and your counsel; your experience is the authority which ought to guide him. In reproaching himself for the wrongs of his youth when he is grown up, he will doubtless reproach you for those against which you did not warn him."

He departs, leaving us both very embarrassed. I blame myself for my soft easygoingness. I promise the child to sacrifice it to his interest the next time and to warn him of his mistakes before he makes them; for the time is approaching when our relations are going to change, when the master's severity must succeed the comrade's compliance. This change ought to take place gradually. Everything must be foreseen, and everything must be foreseen very far ahead of time.

The next day we return to the fair to see again the trick whose secret we have learned. We approach our magician-Socrates with profound respect. Hardly do we dare to raise our eyes to him. He covers us with attentions and gives us a place of distinction, which humiliates us again. He does his tricks as usual, but he entertains and indulges himself for a long time with the duck trick while looking often at us with quite a proud air. We know everything, and we do not breathe a word. If my pupil dared so much as to open his mouth, he would deserve to be annihilated.

Each detail of this example is more important than it seems. How many lessons in one! How many mortifying consequences are attracted by the first movement of vanity! Young master, spy out this first movement with care. If you know thus how to make humiliation and disgrace arise from it, be sure that a second movement will not come for a long time. "So much preparation!" you will say. I agree—and all for the sake of making ourselves a compass to take the place of a meridian.

Having learned that the magnet acts through other bodies, we have nothing more pressing to do than to make a device like the one we have seen. A table hollowed out, a very flat tub fitted into the table and filled with a few inches of water, a duck made with a bit more care, etc. Often busy around the tub, we finally notice that the duck at rest always points in pretty nearly the same direction. We follow up this experience; we examine this direction; we find that it is from south to north. Nothing more is needed; our compass is found, or as good as found. Now we are into physics.

There are various climates on the earth and various temperatures in these climates. One feels the variation of the seasons more as one approaches the pole. All bodies contract with cold and expand with heat. This effect is more measurable in liquids and more accessible to the senses in spirituous liquids: hence the thermometer. Wind strikes the face; air is, therefore, a body, a fluid; one feels it although one has no means of seeing it. Turn a glass upside down in water; the water will not fill it unless you allow the air a way out; air is, therefore, capable of resistance. Push the glass farther down; the water will make headway in the airspace without being able to fill that space completely; air is, therefore, capable of compression up to a certain point. A ball filled with compressed air bounces better than any other matter; air is, there-

fore, an elastic body. When you are stretched out in the bath, lift your arm horizontally out of the water; you will feel that it is loaded with a terrible weight; air is, therefore, a heavy body. By putting air in equilibrium with other fluids, its weight can be measured; this is the source of the barometer, the siphon, the air gun, and the pneumatic pump. All the laws of statics and hydrostatics are to be found by experiments just as crude. I do not want to go into an experimental physics laboratory for any of this. This whole apparatus of instruments and machines displeases me. The scientific atmosphere kills science. Either all these machines frighten a child, or their appearance divides and steals the attention he ought to pay to their effects.

I want us to make all our machines ourselves, and I do not want to begin by making the instrument prior to the experiment. But I do want us, after having caught a glimpse, as it were by chance, of the experiment to be performed, to invent little by little the instrument for verification. I prefer that our instruments be less perfect and accurate and that we have more distinct ideas about what they ought to be and the operations which ought to result from them. For my first lesson in statics, instead of going to look for scales, I put a stick across the back of a chair, and I measure the length of the two parts of the stick in balance. I add weights to both sides, sometimes equal, sometimes unequal, and, pushing and pulling as much as is necessary, I finally find that balance is the result of a reciprocal proportion between the quantity of the weights and the length of the levers. Now my little physicist is already capable of rectifying scales before seeing one.

Without question, one gets far clearer and far surer notions of the things one learns in this way by oneself than of those one gets from another's teachings. One's reason does not get accustomed to a servile submission to authority; furthermore, we make ourselves more ingenious at finding relations, connecting ideas, and inventing instruments than we do when, accepting all of these things as they are given to us, we let our minds slump into indifference—like the body of a man who, always clothed, shod, and waited on by his servants and drawn by his horses, finally loses the strength and use of his limbs. Boileau boasted of having taught Racine to have difficulty in rhyming. Among so many admirable methods for abridging the study of the sciences we greatly need someone to provide us with a method for learning them with effort.

The most palpable advantage of these slow and laborious researches is that they keep the body active and the limbs supple during speculative studies and continuously form the hands for the work and the practices useful to man. All the instruments invented to guide us in our experiments and to take the place of accuracy of the senses cause the senses to be neglected. The graphometer frees us from having to estimate the size of angles. The eye, which used to measure distances with precision, relies on the chain which measures them for it. The balance frees me from judging by hand the weight I know by means of the balance. The more ingenious are our tools, the cruder and more maladroit our organs become. By dint of gathering machines around us, we no longer find any in ourselves.

But when we put the skill which used to take the place of these machines into manufacturing them, when we use the sagacity which was required to do without them for making them, we gain without losing anything, we add art to nature, and we become more ingenious without becoming less adroit. If, instead of glueing a child to books, I bury him in a workshop, his hands work for the profit of his mind; he becomes a philosopher and believes he is only a laborer. Finally, this exercise has other uses of which I shall speak hereafter, and it will be seen how from the games of philosophy one can rise to the true functions of man.

I have already said that purely speculative knowledge is hardly suitable for children, even those nearing adolescence. But without making them go very far in systematic physics, nonetheless arrange that all their experiments are connected with one another by some sort of deduction, in order that with the aid of this chain they can order them in their minds and recall them when needed; for it is quite difficult for isolated facts and even reasonings to stick in the memory if one lacks some connection by which to recall them.

In the quest for the laws of nature, always begin with the phenomena most common and most accessible to the senses, and accustom your pupil to take these phenomena not for reasons but for facts. I take a stone and feign placing it in the air. I open my hand; the stone falls. I look at Emile, who is attentive to what I am doing, and I say to him, "Why did this stone fall?"

What child will stop short at this question? None, not even Emile, if I have not made a great effort to prepare him not to know how to respond. All will say that the stone falls because it is heavy. And what is heavy? That is what falls. The stone falls, therefore, because it falls? Here my little philosopher is really stumped. This is his first lesson in systematic physics, and, whether it profits him in this study or not, it will still be a lesson in good sense.

To the extent that the child advances in intelligence, other important considerations oblige us to be more selective in his occupations. As soon as he gets to know himself sufficiently to conceive in what his well-being consists; as soon as he can grasp relations comprehensive enough to enable him to judge what suits him and what does not suit him; from then on he is in a condition to sense the difference between work and play and to regard the latter as nothing but relaxation from the former. Then objects of real utility can enter into his studies and induce him to give a more constant application than he gave to simple play. The irrepressible law of necessity always teaches man early to do what does not please him in order to prevent an evil which would displease him more. Such is the use of foresight, and from this foresight, well or ill controlled, is born all human wisdom or all human misery.

Every man wants to be happy; but to succeed in being so, one would have to begin by knowing what happiness is. The happiness of the natural man is as simple as his life. It consists in not suffering; health, freedom, and the necessities of life constitute it. The happiness of the moral man is something else. But that kind of happiness is not the question here. I cannot repeat too often that only physical objects can

interest children, especially those whose vanity has not been awakened, and who have not been corrupted ahead of time by the poison of opinion.

When they foresee their needs before feeling them, their intelligence is already quite advanced, and they begin to know the value of time. It is then important to accustom them to direct its employment to useful objects—but objects whose utility they can sense at their age and is within the reach of their understanding. All that depends on the moral order and on the practice of society ought not to be presented to them yet, because they are not in a condition to understand it. It is inept to demand that they apply themselves to things one tells them vaguely are for their own good (without their knowing what that good is) and to things they are assured they will profit from when they are grown up (without their taking any interest now in that alleged profit, which they would not be able to understand).

Let the child do nothing on anybody's word. Nothing is good for him unless he feels it to be so. In always pushing him ahead of his understanding, you believe you are using foresight, and you lack it. To arm him with some vain instruments which he will perhaps never use, you take away from him man's most universal instrument, which is good sense. You accustom him to let himself always be led, never to be anything but a machine in others' hands. You want him to be docile when little: that is to want him to be credulous and a dupe when he is grown up. You constantly tell him, "All that I ask of you is for your own advantage. But you are not in a condition to know it. What difference does it make to me whether you do what I demand? It is only for you yourself that you are working." With all these fine speeches that you make to him now in order to get him to be obedient, you are preparing the success of those speeches which will be made to him one day by a visionary, an alchemist, a charlatan, a cheat, or any kind of madman in order to catch your pupil in his trap or to get him to adopt his madness.

It is important for a man to know many things whose utility a child could not understand. But must and can a child learn everything it is important for a man to know? Try to teach the child everything useful for his age, and you will see that all his time will be more than filled. Why do you, to the detriment of the studies which are suitable for him today, want to apply him to those of an age which it is so uncertain he will reach? "But," you will say, "will there be time to learn what one ought to know when the moment has come to make use of it?" I do not know. But I do know that it is impossible to learn it sooner, for our true masters are experience and sentiment, and man has a good sense of what suits man only with respect to those relations in which he himself has actually participated. A child knows that he is made to become a man; all the ideas he can have of man's estate are opportunities of instruction for him; but he must remain in absolute ignorance of ideas of that estate which are not within his reach. My whole book is only a constant proof of this principle of education.

As soon as we have succeeded in giving our pupil an idea of the word *useful*, we have another great hold for governing him, for this word is very striking to him, provided only that it has a sense relative to his

age and that he sees clearly its relation to his present well-being. Your children are not struck by this word because you have not been careful to give them an idea of it that is within their reach; and because others always take care of providing what is useful for your children, they never need to think about it themselves and do not know what utility is.

"What is that good for?" This is now the sacred word, the decisive word between him and me in all the actions of our life. This is the question of mine which infallibly follows all his questions and which serves as a brake to those multitudes of stupid and tedious interrogations with which children ceaselessly and fruitlessly fatigue all those around them, more to exercise some kind of dominion over them than to get some profit. He who is taught as his most important lesson to want to know nothing but what is useful interrogates like Socrates. He does not put a question without giving himself the reason for it, which he knows will be demanded of him before he is answered.

See what a powerful instrument for acting on your pupil I am putting into your hands. Not knowing the reasons for anything, he is now almost reduced to silence whenever you please. And what an advantage your knowledge and experience give you for showing him the utility of everything you suggest to him! For—do not be deceived—to put this question to him is to teach him to put it to you in turn; and afterward you must count on his following your example and asking about everything you suggest to him, "What is that good for?"

This is perhaps the most difficult trap for a governor to avoid. If at the child's question you seek only to get out of it and give him a single reason he is not in a condition to understand, he will see that you reason according to your ideas and not his and will believe that what you tell him is good for your age and not for his. He will no longer rely on you, and all is lost. But where is the master who is willing to stop short and admit his failings to his pupil? All make it a law for themselves not to admit even those failings they have, while I would make it my law to admit even those I do not have when I cannot put my reasons within his reach. Thus my conduct, always clear in his mind, would never be suspect to him, and I would preserve more credit for myself in pretending I have faults than other masters do in hiding theirs.

In the first place, you should be well aware that it is rarely up to you to suggest to him what he ought to learn. It is up to him to desire it, to seek it, to find it. It is up to you to put it within his reach, skillfully to give birth to this desire and to furnish him with the means of satisfying it. It follows, therefore, that your questions should be infrequent but well chosen; since he will put many more questions to you than you to him, you will always be less exposed and more often in the position to say to him, "In what way is what you ask me useful to know?"

Moreover, it is of little importance whether he learns this or that, provided that he get a good conception of what he learns and the use of what he learns; therefore, if you do not have any clarification of what you say which is valid for him, do not give him one at all. Tell

him without scruple, "I do not have a good response to make to you. I was wrong. Let us leave it at that." If your instruction was really misplaced, there is no harm in simply abandoning it. If it was not misplaced, with a bit of effort you will soon find the occasion to make its utility palpable to him.

I do not like explanations in speeches. Young people pay little attention to them and hardly retain them. Things, things! I shall never repeat enough that we attribute too much power to words. With our babbling education we produce only babblers.

Let us suppose that while I am studying with my pupil the course of the sun and how to get one's bearings, suddenly he interrupts me to ask what is the use of all that. What a fine speech I will make to him! I shall seize the occasion to instruct him about so many things in answering his question, especially if we have witnesses to our conversation! * I shall tell him of the utility of travels, of the advantages of commerce, of the products peculiar to each climate, of the manners of different peoples, of the use of the calendar, of the calculation of the return of the seasons for agriculture, of the art of navigation, of the means to find one's way at sea and to follow one's route exactly without knowing where one is. Politics, natural history, astronomy, even morality and the right of nations will enter into my explanation in such a way as to give my pupil a great idea of all these sciences and a great desire to learn them. When I have finished, I shall have made a true pedant's display of which he will have understood not a single idea. He will have a great longing to ask me, as before, what is the use of getting one's bearings, but he does not dare for fear that I will get angry. He finds it more to his advantage to feign understanding of what he has been forced to hear. That is the way fine educations are given.

But our Emile, more rustically raised and with so much effort made a slow learner, will not listen to any of that. At the first word he does not understand, he is going to run away, frolic around the room, and let me perorate all alone. Let us seek a cruder solution. My scientific gear is worthless for him.

We were observing the position of the forest north of Montmorency when he interrupted me with his importunate question, "What's the use of that?" "You are right," I say to him, "we must think about it at our leisure, and if we find that this work is good for nothing, we won't pick it up again, for we have no lack of useful entertainments." We busy ourselves with something else, and geography is not an issue for the rest of the day.

The next morning I suggest to him a walk before lunch. He does not ask for better. Children are always ready to take a run, and this one has good legs. We go up to the forest; we roam the fields; we get lost; we no longer know where we are; and when we have to go back, we can no longer find our path again. Time passes; it gets hot; we are hungry. We hurry; we wander in vain in one direction and another. We find everywhere only woods, quarries, plains, and no sign by which to

* I have often noticed that in the learned instructions one gives to children one thinks less of getting a hearing from them than from the grownups who are present. I am very sure about what I am saying here, for I have observed it in myself.

locate ourselves. Very hot, very tired, and very hungry, we accomplish nothing by our racing around other than to get more lost. Finally we sit down to rest and deliberate. Emile, who I am supposing has been raised like any child, does not deliberate; he cries. He does not know we are at the gate of Montmorency and that a simple copse hides it from us. But this copse is a forest for him; a man of his stature is buried in bushes.

After some moments of silence I say to him with a worried air, "My dear Emile, what shall we do to get out of here?"

EMILE (all in a sweat and crying hot tears) I don't know. I'm tired, I'm hungry, I'm thirsty. I can't go on.

JEAN-JACQUES Do you believe I am in a better condition than you, and do you think I would blame myself for crying if my tears would do for my lunch? Crying isn't what has to be done. What we have to do is find ourselves. Let's see your watch. What time is it?

EMILE It's noon, and I haven't eaten.

JEAN-JACQUES That's true. It is noon, and I haven't eaten.

EMILE Oh, how hungry you must be!

JEAN-JACQUES The misfortune is that my dinner won't come and look for me here. It is noon? That is exactly the time yesterday when we were observing the position of the forest from Montmorency. If we could observe the position of Montmorency from the forest in the same way. . . ."

EMILE Yes, but yesterday we saw the forest, and from here we don't see the city.

JEAN-JACQUES That's the difficulty. . . . If we could find its position without seeing it. . . .

EMILE Oh, my good friend!

JEAN-JACQUES Did we not say that the forest was . . .

EMILE North of Montmorency. . . .

JEAN-JACQUES Consequently Montmorency ought to be . . .

EMILE South of the forest.

JEAN-JACQUES We have a means of finding the north at noon.

EMILE Yes, by the direction of the shadow.

JEAN-JACQUES But the south?

EMILE What's to be done?

JEAN-JACQUES South is the opposite of north.

EMILE That's true. We have only to look for the opposite of the shadow. Oh, there is the south! There is the south! Surely Montmorency is in that direction. Let's look in that direction.

JEAN-JACQUES You might be right. Let's take this path through the woods.

EMILE (clapping his hands and letting out a cry of joy) Oh, I see Montmorency! There it is straight ahead of us in full view. Let's have lunch! Let's dine! Let's run fast! Astronomy is good for something.

Note that if he does not say this last phrase, he will think it. What is the difference, provided that it is not I who say it? Now, you can be

certain that he will not in his life forget this day's lesson; whereas if I had only made him suppose all this in his room, my speech would have been forgotten the very next day. One must speak as much as one can by deeds and say only what one does not know how to do.

The reader does not expect me to despise him so much as to give him an example for every kind of study. But whatever the question may be, I cannot exhort the governor too much to be sure that his proofs match the pupil's capacity to understand them; for, to repeat, the harm is not in what the pupil does not understand but is in what he believes he understands.

I remember that once I wanted to give a child a taste for chemistry, and after I had shown him precipitates of several metals, I explained to him how ink is made. I told him that its blackness comes only from iron very finely broken up, separated from the vitriol and precipitated by an alkaline solution. In the midst of my learned explanation the little traitor stopped me short with my question, which I had taught him. Now I was quite at a loss.

After having mused about it a bit, I made my decision. I sent for wine from the master of the house's cellar and for another wine at eight pennies from a wine merchant's. I took a fixed alkaline solution in a little flask. Then, with these two different wines in two glasses before me,* I spoke to him thus:

"Many foodstuffs are adulterated to make them appear to be better than they are. These adulterations deceive the eye and the taste, but they are harmful and make the adulterated thing, for all its fine appearance, worse than it was before.

"Drinks, particularly wines, are adulterated, because the deception is more difficult to recognize and gives more profit to the deceiver.

"The adulteration of green or bitter wines is done with litharge. Litharge is a lead preparation. Lead combined with acids makes a very mild salt which corrects the greenness of wine to the taste but is poison for those who drink it. It is, therefore, important before drinking suspect wine to know whether or not it has been treated with litharge. Now here is how I reason in order to discover this.

"The solution of wine contains not only inflammable spirits, as you have seen from the brandy drawn from it; it contains, in addition, acid, as you can know from the vinegar and the tartar also gotten from it.

"Acid has a relation to metallic substances and combines with them by dissolving them to form a compound salt, such as rust for example (which is only iron dissolved by the acid contained in air or water), and also verdegris (which is only copper dissolved in vinegar).

"But this same acid has even more relation to alkaline substances than to metallic substances, so that at the intervention of the former in the compound salts of which I just spoke to you, the acid is forced to let go of the metal with which it is combined to attach itself to the alkali.

* For each explanation one wants to give the child, a little ceremony which precedes it is very useful in making him attentive.

"Then the metallic substance, released from the acid which kept it dissolved, precipitates and makes the liquid opaque.

"If, therefore, one of these two wines is treated with litharge, its acid keeps the litharge in solution. When I pour alkaline liquid into it, it will force the acid to let go of its hold to combine with it. The lead, no longer kept in solution, will reappear, cloud the solution, and finally precipitate at the bottom of the glass.

"If there is no lead * or any other metal in the wine, the alkali will combine peacefully † with the acid, the whole will remain dissolved, and there will be no precipitate."

Then I poured my alkaline solution into each of the two glasses. The one with the house wine remained clear and diaphanous. The other was cloudy in a moment, and at the end of an hour one clearly saw the lead precipitate at the bottom of the glass.

"Here," I went on, "is natural and pure wine that can be drunk; and here is adulterated wine that poisons. This is discovered by means of the same knowledge about whose utility you asked. He who knows well how ink is made also knows how to recognize doctored wines."

I was quite satisfied by my example; nevertheless, I perceived that the child was not struck by it. I needed a bit of time to sense that I had only committed a blunder; for—not to speak of the impossibility of a twelve-year-old child's following my explanation—the usefulness of this experiment never entered his mind. Having tasted the two wines and finding them both good, the word *adulteration,* which I thought I had explained to him so well, did not correspond to any idea he had. The other words—*unhealthy, poison*—did not even have any meaning for him. He was, in this respect, in the same situation as the historian of the physician Philip.[7] That is the situation of all children.

Relations of effects to causes whose connection we do not perceive, goods and ills of which we have no idea, needs we have never experienced—these are nothing to us. It is impossible by means of them to interest us in doing anything which relates to them. At fifteen one sees the happiness of a wise man as one does the glory of paradise at thirty. If one does not have a good conception of these, one will do little to acquire them; and even if one does conceive of them, one will still do little to acquire them if one does not desire them, if one does not feel them to be suitable to oneself. It is easy to prove to a child that what one wants to teach him is useful; but to prove it is nothing if one does not know how to persuade him. In vain does tranquil reason make us approve or criticize; it is only passion which makes us act—and how can one get passionate about interests one does not yet have?

Never show the child anything he cannot see. While humanity is

* The wines sold retail by the wine merchants of Paris, although they are not always treated with litharge, are rarely free of lead, because the counters of these merchants are covered with this metal, and the wine which overflows the measuring cup comes into contact with this lead, stays on it for a time, and always dissolves some part of it. It is strange that so manifest and so dangerous an abuse is tolerated by the police. But it is true that people in easy circumstances, hardly drinking those wines, are little subject to being poisoned by them.

† Vegetable acid is very mild. If it were a mineral acid and less diluted, the combination would not take place without effervescence.

almost alien to him, and you are unable to raise him to man's estate, for his sake lower man to the child's estate. In thinking about what can be useful to him at another age, speak to him only about things whose utility he sees right now. Moreover, let there never be any comparisons with other children, no rivals, no competitors, not even in running, once he has begun to be able to reason. I prefer a hundred times over that he not learn what he would only learn out of jealousy or vanity. However, every year I shall note the progress he has made; I shall compare it to that which he will make the following year. I shall tell him, "You have grown so many inches. That is the ditch you jumped over, the load you carried, the distance you threw a pebble, the course you ran before getting winded, etc. Let us now see what you will do." Thus I arouse him without making him jealous of anyone. He will want to outdo himself. He ought to. I see no problem in his being his own competitor.

I hate books. They only teach one to talk about what one does not know. It is said that Hermes engraved the elements of the sciences on columns in order to shelter his discoveries from a flood.[8] If he had left a good imprint of them in man's head, they would have been preserved by tradition. Well-prepared minds are the surest monuments on which to engrave human knowledge.

Is there no means of bringing together so many lessons scattered in so many books, of joining them in a common object which is easy to see and interesting to follow and can serve as a stimulant even at this age? If one can invent a situation where all man's natural needs are shown in a way a child's mind can sense, and where the means of providing for these needs emerge in order with equal ease, it is by the lively and naïve depiction of this state that the first exercise must be given to his imagination.[9]

Ardent philosopher, I see your imagination kindling already. Do not put yourself out. This situation has been found; it has been described and, without prejudice to you, much better than you would describe it yourself—at least with more truth and simplicity. Since we absolutely must have books, there exists one which, to my taste, provides the most felicitous treatise on natural education. This book will be the first that my Emile will read. For a long time it will alone compose his whole library, and it will always hold a distinguished place there. It will be the text for which all our discussions on the natural sciences will serve only as a commentary. It will serve as a test of the condition of our judgment during our progress; and so long as our taste is not spoiled, its reading will always please us. What, then, is this marvelous book? Is it Aristotle? Is it Pliny? Is it Buffon? No. It is *Robinson Crusoe*.

Robinson Crusoe on his island, alone, deprived of the assistance of his kind and the instruments of all the arts, providing nevertheless for his subsistence, for his preservation, and even procuring for himself a kind of well-being—this is an object interesting for every age and one which can be made agreeable to children in countless ways. This is how we realize the desert island which served me at first as a comparison. This state, I agree, is not that of social man; very likely it is not going

to be that of Emile. But it is on the basis of this very state that he ought to appraise all the others. The surest means of raising oneself above prejudices and ordering one's judgments about the true relations of things is to put oneself in the place of an isolated man and to judge everything as this man himself ought to judge of it with respect to his own utility.

This novel, disencumbered of all its rigmarole, beginning with Robinson's shipwreck near his island and ending with the arrival of the ship which comes to take him from it, will be both Emile's entertainment and instruction throughout the period which is dealt with here. I want it to make him dizzy; I want him constantly to be busy with his mansion, his goats, his plantations; I want him to learn in detail, not from books but from things, all that must be known in such a situation; I want him to think he is Robinson himself, to see himself dressed in skins, wearing a large cap, carrying a large saber and all the rest of the character's grotesque equipment, with the exception of the parasol, which he will not need. I want him to worry about the measures to take if this or that were lacking to him; to examine his hero's conduct; to investigate whether he omitted anything, whether there was nothing to do better; to note Robinson's failings attentively; and to profit from them so as not to fall into them himself in such a situation. For do not doubt that he is planning to go and set up a similar establishment. This is the true "castle in Spain" of this happy age when one knows no other happiness than the necessities and freedom.

What a resource this folly would be for a skillful man who knew how to engender it solely for the sake of taking advantage of it. The child, in a hurry to set up a storehouse for his island, will be more ardent for learning than is the master for teaching. He will want to know all that is useful, and he will want to know only that. You will not need to guide him; you will have only to restrain him. Now let us hurry to establish him on this island while he still limits his felicity to it; for the day is nearing when, if he still wants to live there, he will not want any longer to live there alone, and when Friday, who now hardly concerns him, will not for long be enough for him.

The practice of the natural arts, for which a single man suffices, leads to the investigation of the arts of industry, which need the conjunction of many hands. The former can be exercised by solitaries, by savages; but the others can be born only in society and make it necessary. So long as one knows only physical need, each man suffices unto himself. The introduction of the superfluous makes division and distribution of labor indispensable; although a man working alone earns only subsistence for one man, a hundred men working in harmony will earn enough to give subsistence to two hundred. Therefore, as soon as a part of mankind rests, it is necessary that the joint efforts of those who work make up for the idleness of those who do nothing.

Your greatest care ought to be to keep away from your pupil's mind all notions of social relations which are not within his reach. But when the chain of knowledge forces you to show him the mutual dependence of men, instead of showing it to him from the moral side, turn all his

attention at first toward industry and mechanical arts which make men useful to one another. In taking him from workshop to workshop, never allow him to view any work without putting his hand to the job himself or to leave without knowing perfectly the reason for all that is done there, or at least all that he has observed. To achieve this, work yourself; everywhere provide the example for him. To make him a master, be everywhere an apprentice; and reckon that an hour of work will teach him more things than he would retain from a day of explanations.

There is a public esteem attached to the different arts in inverse proportion to their real utility. This esteem is calculated directly on the basis of their very uselessness, and this is the way it ought to be. The most useful arts are those which earn the least, because the number of workers is proportioned to men's needs, and work necessary to everybody must remain at a price the poor man can pay. On the other hand, these important fellows who are called artists instead of artisans, and who work solely for the idle and the rich, set an arbitrary price on their baubles. Since the merit of these vain works exists only in opinion, their very price constitutes a part of that merit, and they are esteemed in proportion to what they cost. The importance given them by the rich does not come from their use but from the fact that the poor cannot afford them. *Nolo habere bona nisi quibus populus inviderit.**

What will your pupils become if you let them adopt this stupid prejudice, if you encourage it yourself, if, for example, they see you enter a goldsmith's shop with more respect than a locksmith's? What judgment will they make of the true merit of arts and the veritable value of things, when they see that the price is set by whim everywhere in contradiction to the price based on real utility, and that the more a thing costs the less it is worth? The first moment you let these ideas into their heads, abandon the rest of their education. In spite of you, they will be raised like everyone else. You have wasted fourteen years of effort.

Emile, planning to furnish his island, will have other ways of seeing. Robinson Crusoe would have attached much more importance to a toolmaker's shop than to all Said's [11] gewgaws. The former would have appeared to him to be a very respectable man, and the other a little charlatan.

"My son is made to live with others. He will live not with wise men but with madmen. Therefore, he must know their madnesses since they wish to be led by them. The real knowledge of things may be good, but that of men and their judgments is even more valuable, for in human society the greatest instrument of man is man, and the wisest is he who best makes use of this instrument. What is the use of giving children the idea of an imaginary order which is entirely opposed to the established one they will find and according to which they will have to govern themselves? Give them lessons in the first place for being wise, and then you can give them lessons for judging how other men are mad."

* Petronius.[10]

These are the specious maxims which guide the false prudence of fathers in making their children slaves of the prejudices they feed them and playthings themselves of the senseless mob which they expect to make the tool of their passions. To get to know man, how many things must be known before him! Man is the last study of the wise, and you claim to make it a child's first! Before instructing him in our sentiments, begin by teaching him to evaluate them. Does one know a folly when one takes it to be reasonable? To be wise one must discern what is not wise. How will your child know men if he does not know how to judge their judgments or detect their errors? It is bad to know what they think when one does not know whether what they think is true or false. Teach him, therefore, in the first place what things are in themselves, and you can teach him afterward what they are in our eyes. It is thus that he will know how to compare the opinion to the truth and to raise himself above the vulgar; for one does not know prejudices when one adopts them, and one does not lead the people when one resembles them. But if you begin by instructing him in public opinion before teaching him to appraise it, rest assured that, whatever you may do, it will become his, and you will no longer be able to destroy it. I draw the conclusion that to make a young man judicious, we must form his judgments well instead of dictating ours to him.

You see that up to now I have not spoken of men to my pupil. He would have had too much good sense to listen to me. He does not yet have a sufficient sense of his relations with his species to be able to judge of others by himself. He knows no human being other than himself alone, and he is even far from knowing himself. But if he makes few judgments about his person, at least he makes only exact ones. He does not know the place of others, but he feels his own and stays in it. In place of the social laws which he cannot know, we have bound him with the chains of necessity. He is still almost only a physical being. Let us continue to treat him as such.

It is by their palpable relation to his utility, his security, his preservation, and his well-being that he ought to appraise all the bodies of nature and all the works of men. Thus, iron ought to be much more valuable in his eyes than gold, and glass than diamonds. Similarly, he honors a shoemaker or a mason far more than a Lempereur, a Leblanc,[12] and all the jewelers of Europe. A pastry chef especially is a very important man in his eyes, and he would give the whole Academy of Sciences for the lowest candymaker of the rue des Lombards. The goldsmiths, the engravers, and the gilders are in his view nothing but loafers who play perfectly useless games. He does not treat even clockmaking very seriously. The happy child enjoys time without being its slave. He profits from it and does not know its value. The calm of the passions, which makes the passage of time always uniform, takes the place for him of an instrument for measuring it at need.* In assuming he has a watch as well as in making him cry, I gave myself a common

* Time loses its measure for us when our passions want to adjust its course according to their taste. The wise man's watch is evenness of temper and peace of soul. He is always on time for himself, and he always knows what that time is.

Emile, to be useful and to make myself understood; for, with respect to the true one, a child so different from others would not serve as an example for anything.

There is an order no less natural and still more judicious by which one considers the arts according to the relations of necessity which connect them, putting in the first rank the most independent and in the last those which depend on a greater number of others. This order, which provides important considerations about the order of society in general, is similar to the preceding one and subject to the same inversion in men's esteem. The result of this is that raw materials are used in crafts without honor and almost without profit, and that the more hands they pass through, the more labor increases in price and becomes honorable. I am not examining whether it is true that the skill is greater and merits more recompense in the detailed arts which give the final form to these materials than in the initial work which converts them to the use of men. But I do say that, with each thing, the art whose use is the most general and the most indispensable is incontestably the one which merits the most esteem; and the one to which other arts are less necessary also merits esteem ahead of the more subordinate ones, because it is freer and nearer independence. These are the true rules for appraising the arts and manufactures. Anything else is arbitrary and depends on opinion.

The first and most respectable of all the arts is agriculture; I would put ironworking in the second rank, woodworking in the third, and so on. The child who has not been seduced by vulgar prejudices will judge of them precisely thus. What important reflections on this point our Emile will draw from his *Robinson Crusoe*! What will he think on seeing that the arts are only perfected in being subdivided, in infinitely multiplying the instruments of all of them? He will say to himself, "All these people are stupidly ingenious. One would believe they are afraid that their arms and their fingers might be of some use, so many instruments do they invent to do without them. To practice a single art they are subjected to countless others. A city is needed for every worker. As for my companion and me, we put our genius in our adroitness. We make ourselves tools that we can take everywhere with us. All those people so proud of their talents in Paris would not know how to do anything on our island and would be our apprentices in their turn."

Reader, do not stop here to view the training of our pupil's body and the skill of his hands; but consider what direction we are giving to his childish curiosities; consider his sense, his inventive spirit, and his foresight; consider what a head we are putting on his shoulders. In all that he will see, in all that he will do, he will want to know everything; he will want to learn the reason for everything. From instrument to instrument he will want always to go back to the first; he will accept no assumption. He would refuse to learn whatever demands prior knowledge he does not have. If he sees a spring, he will want to know how the steel was taken from the mine. If he sees the pieces of a box being assembled, he will want to know how the tree was cut. If he works himself, with every tool he uses he will not fail to ask himself,

"If I did not have this tool, how would I go about making one like it or doing without it?"

An error difficult to avoid is always to assume the child has the same taste for the activities about which the master is enthusiastic. When the entertainment of work carries you away, be careful that in the meantime he is not bored without daring to indicate it to you. The child ought to be wholly involved with the thing, but you ought to be wholly involved with the child—observing him, spying on him without letup and without appearing to do so, sensing ahead of time all his sentiments and forestalling those he ought not to have—in a word, busying him in such a way that he not only feels he is of use in the work but is pleased by dint of understanding well the purpose of that work.

The society of the arts consists in exchange of skills, that of commerce in exchange of things, that of banks in exchange of signs and money. All these ideas are connected, and the elementary notions are already grasped. We laid the foundations for all this at an early age with the help of Robert, the gardener. It only remains for us now to generalize these same ideas and extend them to more examples to make him understand the workings of trade taken by itself and presented to his senses by the details of natural history regarding the products peculiar to each country, by the details of arts and sciences regarding navigation, and finally, by the greater or lesser problems of transport according to distance, the situation of lands, seas, rivers, etc.

No society can exist without exchange, no exchange without a common measure, and no common measure without equality. Thus all society has as its first law some conventional equality, whether of men or of things.

Conventional equality among men, very different from natural equality, makes positive right—that is, government and laws—necessary. The political knowledge of a child ought to be distinct and limited; he ought to know about government in general only what relates to the right of property, of which he already has some idea.

Conventional equality among things prompted the invention of money, for money is only a term of comparison for the value of things of different kinds; and in this sense money is the true bond of society. But everything can be money. Once cattle was; shells still are among many peoples; iron was money in Sparta; leather has been in Sweden; gold and silver are among us.

Metals, since they are easier to transport, have generally been chosen as mean terms for all exchanges; and these metals have been converted into money to spare measuring or weighing at each exchange. For the stamping of money is only an attestation that the piece thus stamped is of a certain weight; the prince alone has the right to strike money, given that he alone has the right to demand that his witness be authoritative among a whole people.

Thus explained, the use of this invention is made apparent to the stupidest of persons. It is difficult to compare directly things of different natures—cloth, for example, to wheat. But when one has found a common measure—money—it is easy for the manufacturer and the farmer to relate to this common measure the value of the things they want to

exchange. If such a quantity of cloth is worth such a sum of money, and such a quantity of wheat should also be worth the same sum of money, it follows that the merchant, receiving this wheat for his cloth, makes an equitable exchange. Thus it is by money that goods of various kinds become commensurable and can be compared.

Do not go farther than this, and do not enter into an explanation of the moral effects of this institution. With all things it is important that the uses be well presented before the abuses are shown. If you aspire to explain to children how the signs make the things neglected, how all the chimeras of opinion are born from money, how countries rich in money must be poor in everything else, you would be treating these children not only as philosophers but as wise men, and you would be aspiring to make them understand a thing of which even few philosophers have had a good conception.

To what an abundance of interesting objects can one thus turn a pupil's curiosity without ever abandoning the real material relations which are within his reach or allowing a single idea that he cannot conceive to spring up in his mind! The art of the master consists in never letting his pupil's observations dwell on minutiae which lead nowhere but in bringing him ever closer to the great relations he must know one day in order to judge well of the good and bad order of civil society. One must know how to match the conversations with which one entertains him to the turn of mind he has been given. A question which could not even stir the attention of another is going to torment Emile for six months.

We go to dine in an opulent home. We find the preparations for a feast—many people, many lackeys, many dishes, an elegant and fine table service. All this apparatus of pleasure and festivity has something intoxicating about it which goes to the head when one is not accustomed to it. I have a presentiment of the effect of all this on my young pupil. While the meal continues, while the courses follow one another, while much boisterous conversation reigns at the table, I lean toward his ear and say, "Through how many hands would you estimate that all you see on this table has passed before getting here?" What a crowd of ideas I awaken in his brain with these few words! Instantly, all the vapors of the delirium are dispelled. He dreams, he reflects, he calculates, he worries. While the philosophers, cheered by the wine, perhaps by the ladies next to them, prate and act like children, he is all alone philosophizing for himself in his corner. He questions me; I refuse to answer; I put him off to another time. He gets impatient; he forgets to eat and drink; he burns to get away from the table to discuss with me at his ease. What an object for his curiosity! What a text for his instruction! With a healthy judgment that nothing has been able to corrupt, what will he think of this luxury when he finds that every region of the world has been made to contribute; that perhaps twenty million hands have worked for a long time; that it has cost the lives of perhaps thousands of men, and all this to present to him with pomp at noon what he is going to deposit in his toilet at night?

Spy out with care the secret conclusions he draws in his heart from

all his observations. If you have guarded him less well than I assume, he may be tempted to turn his reflections in another direction and to regard himself as an important person in the world, seeing so many efforts concerted to prepare his dinner. If you get a presentiment of this reasoning, you can easily forestall it before he makes it, or at least efface its impression immediately. Not yet knowing how to appropriate things other than by material enjoyment, he can judge of their suitability or lack of it for him only by means of relations accessible to his senses. The comparison of a simple, rustic dinner, prepared by exercise, seasoned by hunger, freedom, and joy, with his magnificent formal feast will suffice to make him feel that all the apparatus of the feast did not give him any real profit, and that since his stomach left the peasant's table as satisfied as it left the financier's, there was nothing more in the one than in the other that he could truly call his own.

Let us imagine what a governor will be able to say to him in such a case: "Recall these two meals, and decide for yourself which you ate with the most pleasure. At which did you notice more joy? At which did one eat with greater appetite, drink more gaily, laugh more goodheartedly? Which went on longest without boredom and without needing to be renewed by other courses? Meanwhile, look at the difference: this wholewheat bread you find so good comes from wheat harvested by this peasant; his wine, black and coarse but refreshing and healthy, is the product of his own vine; the linen comes from his hemp, woven in the winter by his wife, his daughters, and his servant girl. No hands other than those of his family made the preparations for his table; the nearest mill and the neighboring market are the limits of the universe for him. In what way then did you really enjoy everything additional provided for that other table by distant lands and the hands of men? If all that did not give you a better meal, what have you gained from this abundance? What was in it that was made for you? If you had been the master of the house," he will be able to add, "all this would have remained even more alien to you, for the effort of displaying your enjoyment to the eyes of others would have succeeded in taking that enjoyment away from you. You would have had the discomfort, and they the pleasure."

This speech may be very fine, but it is worthless for Emile, whose reach it exceeds and whose reflections are not dictated by others. Speak to him therefore more simply. After these two tests say to him one morning, "Where shall we dine today? Next to that mountain of silver which covers three-quarters of the table and those beds of paper flowers which are served on mirrors with dessert? Amidst those women with great skirts who treat you like a puppet and insist that you have said what you do not know? Or, rather, in that village two leagues from here with those good people who receive us so joyfully and give us such good custard?" There is no doubt about Emile's choice, for he is neither a babbler nor vain. He cannot endure constraint, and all our delicate relishes do not please him. But he is always ready to run in the country, and he very much likes good fruits, good vegetables,

good custard, and good people.* On our way, the reflection comes of itself. I see that these crowds of men who work at these grand meals simply waste their efforts, or that they hardly think of our pleasures.

My examples, good perhaps for one pupil, will be bad for countless others. If one catches the spirit of these examples, one will surely know how to vary them according to need. The choice depends on the genius peculiar to each pupil, and the study of that genius depends on the occasions one offers each to reveal himself. It cannot be imagined that, in the space of the three or four years we have to fill here, we can give the most fortunately born child a sufficient idea of all the arts and all the natural sciences for him to learn them one day by himself. But in thus making all the objects it is important for him to know pass before him, we put him in a position to develop his taste and his talent, to make the first steps toward the object to which his genius leads him, and to indicate to us the route which must be opened to him in order to assist nature.

Another advantage of this chain of limited but precise knowledge is to show him the different kinds of knowledge in their connections and relations, to give them all a place in his esteem, and to forestall in him the prejudices most men have in favor of the talents they cultivate and against those they have neglected. He who sees well the order of the whole sees the place where each part ought to be. He who sees a part well and knows it in depth may be a learned man; the other is a judicious man; and you remember that what we are proposing to acquire is less science than judgment.

However that may be, my method is independent of my examples. It is founded on the measure of man's faculties at his different ages and on the choice of occupations which suit these faculties. I believe that another method would easily be found which would appear to do better. But if it were less appropriate to the species, the age, the sex, I doubt that it would have the same success.

In beginning this second period we have taken advantage of the superabundance of our strength over our needs in order to take us outside of ourselves. We have launched ourselves into the heavens; we have measured the earth; we have harvested the laws of nature. In a word, we have visited the whole island. Now we come back to ourselves. We are imperceptibly coming nearer to the place we dwell, only too happy on returning there to find it still not possessed by the enemy which threatens us and which is preparing to take hold of it!

What remains for us to do after having observed all that surrounds us? To convert to our use all that we can appropriate for ourselves and to profit from our curiosity for the advantage of our well-being. Up to

* The taste for the country I assume in my pupil is a natural fruit of his education. Moreover, with none of the foppish and affected air which is so pleasing to women, he is made less of by them than are other children. Consequently, he enjoys himself less with them and is less spoiled by their society, whose charms he is not yet in a condition to sense. I have been careful not to teach him to kiss their hands, to say insipidities to them, or even to show them, in preference to men, the attentions due them. I have set myself an inviolable law to demand nothing from him whose reason is not within his reach, and there is no good reason for a child to treat one sex differently from the other.

now we have provided for instruments of every kind without knowing which we shall need. Perhaps useless to ourselves, ours will be able to serve other men; and perhaps, in our turn, we shall need theirs. Thus we would all be advantaged by these exchanges. But to make them, our mutual needs must be known. Each must know what others have which he can use and what he can offer them in return. Let us suppose ten men, each of whom has ten sorts of needs. Each must, for what he needs, apply himself to ten sorts of work; but, given the differences of genius and talent, one man will be less successful at one sort of work, another man at another. Although fit for diverse things, all will do the same ones and will be ill served. Let us form a society of these ten men and let each apply himself, for himself and for the nine others, to the kind of occupation which suits him best. Each will profit from the talents of the others as if he alone had them all. Each will perfect his own by continuous practice, and it will turn out that all ten, perfectly well provided for, will even have a surplus for others. That is the apparent principle of all our institutions. It is not part of my subject to examine its consequences here. I have done it in another writing.[13]

According to this principle, a man who wanted to regard himself as an isolated being, not depending at all on anything and sufficient unto himself, could only be miserable. It would even be impossible for him to subsist. For, finding the whole earth covered with thine and mine and having nothing belonging to him except his body, where would he get his necessities? By leaving the state of nature, we force our fellows to leave it, too. No one can remain in it in spite of the others, and it would really be leaving it to want to remain when it is impossible to live there, for the first law of nature is the care of preserving oneself.

Thus the ideas of social relations are formed little by little in a child's mind, even before he can really be an active member of society. Emile sees that, in order to have instruments for his use, he must in addition have instruments for the use of other men with which he can obtain in exchange the things which are necessary to him and are in their power. I easily bring him to feel the need for these exchanges and to put himself in a position to profit from them.

"My lord, I have to live," said an unfortunate satiric author to the minister who reproached him for the disgracefulness of his trade. "I do not see why it is necessary," the man in office responded coldly. This response, excellent for a minister, would have been barbarous and false in any other mouth. Every man must live. This argument, which is more or less weighty for a man to the extent he is more or less humane, appears to me to be unanswerable for him who makes it relative to himself. Since the aversion to dying is the strongest of all those aversions nature gives us, it follows that it permits everything to anyone who has no other possible means of living. The principles according to which the virtuous man learns to despise his life and to sacrifice it to his duty are very far from this primitive simplicity. Happy are the peoples among whom one can be good without effort and just without virtue! If there is some miserable state in the world where a

man cannot live without doing harm and where the citizens are rascals by necessity, it is not the malefactor who should be hanged, but he who forces him to become one.

So soon as Emile knows what life is, my first care will be to teach him to preserve it. Up to now I have not distinguished stations, ranks, and fortunes; and I shall hardly distinguish them in what follows. This is because man is the same in all stations; the rich man does not have a bigger stomach than the poor one and does not digest better than he; the master does not have arms longer or stronger than his slave's; a man of great family is no greater than a man of the people; and finally, as the natural needs are everywhere the same, the means of providing for them ought to be equal everywhere. Suit the education of man to man, not to what is not man. Do you not see that in working to form him exclusively for one station you are making him useless for any other, and that if fortune pleases, you will have worked only to make him unhappy? What is more ridiculous than a great lord who has become destitute and brings the prejudices of his birth with him to his distress? What is viler than an impoverished rich man who, remembering the contempt owed to poverty, feels himself to have become the lowest of men? The one has as his only recourse the trade of public rascal; the other that of crawling valet who uses this fair phrase, "I have to live."

You trust in the present order of society without thinking that this order is subject to inevitable revolutions, and it is impossible for you to foresee or prevent the one which may affect your children. The noble become commoners, the rich become poor, the monarch becomes subject. Are the blows of fate so rare that you can count on being exempted from them? We are approaching a state of crisis and the age of revolutions.* Who can answer for what will become of you then? All that men have made, men can destroy. The only ineffaceable characters are those printed by nature; and nature does not make princes, rich men, or great lords. What, then, will this satrap whom you have raised only for greatness do in lowliness? What will this publican who knows how to live only with gold do in poverty? What will this gaudy imbecile, who does not know how to make use of himself and puts his being only in what is alien to himself, do when he is deprived of everything? Happy is the man who knows how to leave the station which leaves him and to remain a man in spite of fate! That vanquished king who, full of rage, wants to be buried under the debris of his throne may be praised as much as one pleases; I despise him. I see that he exists only by his crown, and that he is nothing at all if he is not a king. But he who loses it and does without it is then above it. From the rank of king which a coward, a wicked man, or a madman can fill, he rises to the station of man, which so few men know how to fill. Then he triumphs over fortune; he braves it. He owes nothing except to himself; and when there remains nothing for him to show

* I hold it to be impossible that the great monarchies of Europe still have long to last. All have shined, and every state which shines is on the decline. I have reasons more particular than this maxim for my opinion, but it is unseasonable to tell them, and everyone sees them only too well.

except himself, he is not nothing, he is something. Yes, I prefer a hundred times over the king of Syracuse becoming a schoolmaster at Corinth and the king of Macedonia becoming a clerk at Rome[14] to an unfortunate Tarquin not knowing what to become if he does not reign, and to the heir and son of a king of kings,* the plaything of whoever dares to insult his distress, wandering from court to court, seeking help everywhere, and finding affronts everywhere for want of knowing how to do anything other than perform a trade which is no longer in his power.

A man and a citizen, whoever he may be, has no property to put into society other than himself. All his other property is in it in spite of him; and when a man is rich, either he does not enjoy his riches or the public enjoys them, too. In the first case, he robs from others that of which he deprives himself; and in the second, he gives them nothing. Thus the social debt remains with him in its entirety so long as he pays only with his property. "But my father, in earning it, served society . . ." So be it; he has paid his debt, but not yours. You owe others more than if you were born without property, since you were favored at birth. It is not just that what one man has done for society should relieve another from what he owes it; for each, owing himself wholly, can pay only for himself and no father can transmit to his son the right to be useless to his fellows. This is, however, what he does, according to you, in transmitting to him his riches, which are the proof and the price of work. He who eats in idleness what he did not earn himself steals it. A man whom the state pays an income for doing nothing hardly differs in my eyes from a brigand who lives at the expense of passers-by. Outside of society isolated man, owing nothing to anyone, has a right to live as he pleases. But in society, where he necessarily lives at the expense of others, he owes them the price of his keep in work. This is without exception. To work is therefore an indispensable duty for social man. Rich or poor, powerful or weak, every idle citizen is a rascal.[16]

Now, of all the occupations which can provide subsistence to man, that which brings him closest to the state of nature is manual labor. Of all conditions, the artisan's is the most independent of fortune and men. The artisan depends only on his work. He is as free as the farmer is slave. For the latter is dependent on his field, whose harvest is at another's discretion. The enemy, the prince, a powerful neighbor, or a lawsuit can take this field away from him. By means of this field he can be vexed in countless ways. But wherever they want to vex the artisan, his baggage is soon packed. He takes his hands and goes away. However, agriculture is man's first trade. It is the most decent, the most useful, and consequently the most noble he can practice. I do not say to Emile, "Learn agriculture." He knows it. He is familiar with all the kinds of rustic work. He began with them, he constantly returns to them. I say to him therefore, "Cultivate the inheritance of your fathers. But if you lose that inheritance, or if you have none, what is to be done? Learn a trade."

* Vonones, son of Phrates, king of the Parthians.[15]

"A trade for my son! My son an artisan! Sir, are you in your right mind?" I am thinking clearly, more clearly than you, madame, who want to reduce him to never being able to be anything but a lord, a marquess, a prince, and perhaps one day less than nothing. I want to give him a rank which he cannot lose, a rank which does him honor at all times; and whatever you may say about it, he will have fewer equals with this title than with all those he will get from you.

The letter kills, and the spirit enlivens. The goal is less to learn a trade in order to know a trade than to conquer the prejudices that despise a trade. You will never be reduced to working to live. Well, too bad—too bad for you! But, that is not important; do not work out of necessity; work out of glory. Lower yourself to the artisan's station in order to be above your own. In order to subject fortune and things to yourself, begin by making yourself independent of them. To reign by opinion, begin by reigning over it.

Remember that it is not a talent that I ask of you. It is a trade, a true trade, a purely mechanical art in which the hands work more than the head, one which does not lead to fortune but enables one to do without it. In homes far above the danger of lacking bread I have seen fathers carry foresight to such a point that they join to the care of instructing their children that of providing them with knowledge which in any eventuality they could draw on to live. These foresighted fathers believe that they are doing a great deal. They are doing nothing, because the resources they think they are husbanding for their children depend on that same fortune above which they want to place them. The result is that with all these fine talents, if he who has them does not find himself in circumstances favorable for making use of them, he will perish from want just as if he had no talents.

As soon as it is a question of wiles and intrigues, one might as well use them to maintain oneself in abundance as to regain, from the bosom of want, the means to climb up to one's former station again. If you cultivate arts whose success depends on the artist's reputation, if you make yourself fit for employments which are obtained only by favor, of what use will all this be to you when you, because you have become disgusted with society, will disdain the means without which one cannot succeed in it? You have studied politics and the interests of princes. That is very good. But what will you do with this knowledge if you do not know how to get to ministers, to the women of the court, to the heads of bureaus, if you do not have the secret of pleasing them, if all do not find in you the rascal who suits them? You are an architect or a painter. So be it. But you have to make your talent known. Do you think you can just start out by showing a work at the Salon? Oh, that is not the way it goes! You have to belong to the Academy. You even have to have pull in it in order to obtain some obscure place in a corner. Leave your ruler and your brush, I tell you. Take a cab and run from door to door. It is thus that celebrity is acquired. You ought to know that all these illustrious doors have Swiss [17] or doormen who understand only by gesture and whose ears are in their hands. Do you want to teach what you have learned and become a master of geography, or mathematics, or languages, or music, or drawing? In order

to do even that, you have to find students, and to do that, you have to find boosters. Count on its being more important to be a charlatan than a capable man and on your never being anything but an ignoramus if the only trade you know is your own.

See, therefore, how little solid are all those brilliant resources and how many other resources are necessary for you to take advantage of them. And then what will become of you in this cowardly debasement? Reverses degrade you without instructing you. How will you—more than ever a plaything of public opinion—raise yourself above the prejudices which are the arbiters of your fate? How will you despise the baseness and the vices which you need to subsist? You depended only on riches, and now you depend on the rich. You have only worsened your slavery and added your poverty on top of it. Now you are poor without being free. It is the worst condition into which man can fall.

But if instead of having recourse, in order to live, to these high kinds of knowledge, made for feeding the soul and not the body, you have recourse in need to your hands and the use you know how to make of them, all the difficulties disappear, all the wiles become useless. The resource is always ready when it has to be used. Probity and honor are no longer an obstacle to life. You no longer need to be a coward and a liar with the nobles, pliable and groveling with rascals, basely obliging to everyone, a borrower or a thief—which are almost the same thing when one has nothing. The opinion of others does not touch you. You do not have to pay court to anyone; no fool to flatter, no Swiss to move, no courtesan to pay and, what is worse, to butter up. That rogues have the conduct of great affairs is of little importance to you. It will not prevent you, in your obscure life, from being an honest man and having bread. You enter the first shop of the trade you have learned. "Master, I need work." "Journeyman, set yourself there and work." Before the dinner hour has come, you have earned your dinner. If you are diligent and sober, before a week has passed you will have the means to live another week. You will have lived free, healthy, true, industrious, and just. It is not wasting time to earn your livelihood in this way.

I absolutely want Emile to learn a trade. A decent trade at least, will you say? What does this word mean? Is not every trade decent that is useful to the public? I do not want him to be an embroiderer, a gilder, or a varnisher, like Locke's gentleman.[18] I do not want him to be a musician, an actor, or a writer of books. With the exception of these professions and those that resemble them, let him take the one he wants. I do not presume to restrain him in anything. I prefer that he be a shoemaker to a poet, that he pave highways to making porcelain flowers. But, you will say, policemen, spies, and hangmen are useful people. They owe their usefulness entirely to the government, which could also make them useless. But let that pass. I was wrong. It does not suffice to choose a useful trade. It must, further, not demand from those practicing it qualities of soul that are odious and incompatible with humanity. Thus, returning to the first word, let us take a decent trade. But let us always remember that there is no decency without utility.

A celebrated author of this age,[19] whose books are full of great projects and small views, took the vow, like all the priests of his communion, not to have a wife of his own; but, being more scrupulous than the others about adultery, he is said to have chosen the course of having pretty servants with whom he did his best to atone for the outrage he had committed against his species by this rash commitment. He regarded it as a citizen's duty to give other citizens to his country; and, with the tribute of this kind he paid it, he peopled the class of artisans. As soon as these children were at the proper age, he made all of them learn a trade that suited their taste, excluding only professions that are idle, futile, or subject to fashion, such as that of wigmaker, which is never necessary and can become useless from one day to the next, so long as nature does not cease providing us with hair.

This is the spirit which should guide us in the choice of Emile's trade; or, rather, it is not for us to make this choice but for him. For the maxims with which he is imbued preserve in him the natural contempt for useless things, and thus he will never want to consume his time in labors of no value. He knows no value in things other than their real utility. He has to have a trade that could serve Robinson Crusoe on his island.

In making the products of nature and art pass in review before a child, in exciting his curiosity, in following him where it leads him, one has the advantage of studying his tastes, his inclinations, and his penchants and of seeing the first spark of his genius ignite, if he has one which is well defined. But a common error, from which you must be preserved, is to attribute to the ardor of talent the effect of circumstances and to take for a definite inclination to such and such an art the imitative spirit common to man and ape, which leads both mechanically to want to do everything they see done without quite knowing what it is good for. The world is full of artisans, and especially of artists, who do not possess natural talent for the art they practice but were pushed into it by others from an early age, whether prompted by other considerations or deceived by an apparent zeal which would have similarly led them to any other art if they had seen it practiced as soon. One hears a drum and believes he is a general. Another sees a building and wants to be an architect. Each is tempted by the trade he sees performed when he believes it is esteemed.

I knew a lackey who, seeing his master paint and draw, took it into his head to be a painter and drawer. From the moment he formed this resolve, he picked up the pencil and no longer put it down except to pick up the brush, which he will never put down for the rest of his life. Without lessons and without rules he set himself to drawing everything that came to hand. He spent three whole years glued to his scribblings, without anything other than his work able to tear him away from them and without ever losing heart at the small progress that his mediocre gifts permitted him to make. I saw him during six months of a hot summer—in a little antechamber facing south where one suffocated just on passing through—seated, or rather nailed, on his chair all day in front of a globe, drawing this globe and drawing it again, constantly beginning and beginning again with invincible

obstinacy, until he had rendered the high relief well enough to be satisfied with his work. Finally, encouraged by his master and guided by an artist, he reached the point of leaving the livery and living from his brush. Up to a certain limit perseverance takes the place of talent. He has reached that limit and will never go beyond it. The constancy and the emulation of this decent boy are laudable. He will make himself esteemed forever for his assiduity, his fidelity, and his morals. But he will never paint anything but pictures for the panels placed above doors. Who would not have been deceived by his zeal and taken him for a true talent? There is a great difference between enjoying some kind of work and being fit for it. We need sharper observations than is thought to get assurances of the true genius and the true taste of a child who shows his desires far more than his disposition, and who is always judged by the former for want of knowing how to study the latter. I would want a judicious man to give us a treatise on the art of observing children. This art would be very important to know. Fathers and masters have not yet learned its elements.

But perhaps we are giving too much importance here to the choice of a trade. Since the issue is only one of some kind of work done with the hands, this choice is nothing for Emile, and his apprenticeship is already more than half completed by the exercises with which we have kept him busy up to now. What do you want him to do? He is ready for anything. He already knows how to handle a spade and a hoe. He knows how to use a lathe, a hammer, a plane, and a file. The tools of all the trades are already familiar to him. The issue is now nothing more than to be able to use one of these tools quickly and easily enough to equal in rapidity the good workers who employ it. And he has in this respect a great advantage over them all: he has an agile body and limbs flexible enough to enable him to get into all sorts of postures without difficulty and to prolong all sorts of movements without effort. Moreover, his organs are sound and well exercised. All the operations of the arts are already known to him. In order to be able to work as a master, he lacks only experience, and experience is gotten only with time. To which of the trades from which we may still choose, then, will he give enough time to make himself proficient at it? This is the only question left.

Give a man a trade which suits his sex and a young man a trade which suits his age. Every sedentary and indoor profession which effeminates and softens the body neither pleases nor suits him. Never did a young boy by himself aspire to be a tailor. Art is required to bring to this woman's trade the sex for which it is not made.* The needle and the sword cannot be wielded by the same hands. If I were sovereign, I would permit sewing and the needle trades only to women and to cripples reduced to occupations like theirs. Assuming eunuchs to be necessary, I find it quite mad for Orientals to make them specially. Why are they not satisfied with those made by nature, with those crowds of cowardly men whose heart it has mutilated? They would have more than enough for the need. Every weak, delicate, and fearful man is condemned by nature to a sedentary life. He is made to live with women

* There were no tailors among the ancients. Men's costumes were made at home by the women.

or in their manner. Let him practice one of those trades which are fit for them; that is all very well. And if there absolutely must be true eunuchs, let men who dishonor their sex by taking jobs which do not suit it be reduced to this condition. Their choice proclaims nature's mistake. Correct its mistake one way or another. You will have only done good.

I forbid my pupil unhealthy trades but not hard trades or even dangerous ones. They exercise strength and courage at the same time; they are fit for men alone; women do not pretend to them. How can men not be ashamed to encroach on those that women do?

> *Lucatantur paucae, comedunt colliphia paucae.*
> *Vos lanam trahitis, calathisque peracta refertis*
> *Vellera . . .**

In Italy one does not see women in shops, and nothing gloomier than the sight of the streets in that country can be imagined by those who are accustomed to the streets of France and England. On seeing fashion merchants sell ribbons, tassels, net, and chenille to ladies, I found these delicate adornments quite ridiculous in big hands made for using the bellows on a forge and striking an anvil. I said to myself, "In this country the women ought to take reprisal by setting up shop as swordmakers and gunsmiths." Oh, let each make and sell the arms of his own sex! To know them, they must be used.

Young man, put the imprint of a man's hand on your labors. Learn to wield the ax and the saw with a vigorous arm, to square a beam, to climb up to the roof of a house, set the ridge on it, and prop it with struts and tie-rods. Then yell for your sister to come to help you with your work as she told you to work at her needlepoint.

I sense that I am saying too much about this for my refined contemporaries, but I sometimes let myself be carried away by the force of arguments. If any man, whoever he may be, is ashamed to work in public armed with a cooper's ax and girded with a leather apron, I see in him nothing more than a slave of opinion, ready to blush at doing good whenever decent people are ridiculed. However, let us cede to the prejudice of fathers all that can do no harm to children's judgment. It is not necessary to practice all the useful professions in order to honor them all. It suffices not to esteem any as beneath oneself. When there is a choice and nothing otherwise determines us, why should we not consult attractiveness, inclination, and suitability in professions of the same rank? Metalwork is useful, even the most useful of all. However, unless a special reason brings me to it, I will not make your son a blacksmith, a locksmith, or an ironsmith. I would not like to see him at his forge with the aspect of a Cyclops. Similarly, I will not make him a mason, still less a shoemaker. All the trades have to be done. But he who can choose ought to look to cleanliness, for this preference is not a result of opinion. On this point the senses decide for us. Finally, I would not like those stupid professions in

* Juvenal, *Satires* II 53–55.[20]

which the workers, without industry and almost automatons, never exercise their hand at anything but the same work—weavers, stocking makers, stonecutters. What is the use of employing men of sense in these trades? It is a case of one machine guiding another.

All things well considered, the trade I would most like to be to my pupil's taste is the carpenter's. It is clean; it is useful; it can be practiced at home. It keeps the body sufficiently in shape; it requires skill and industry from the worker; and while the form of the work is determined by utility, elegance and taste are not excluded.

If by chance your pupil's genius were definitely turned toward the speculative sciences, then I would not blame his being given a trade conformable to his inclinations—that he learn, for example, to make mathematical instruments, spyglasses, telescopes, etc.[21]

When Emile learns his trade, I want to learn it with him, for I am convinced that he will only ever learn well what we learn together. We shall, therefore, put both of ourselves in apprenticeship; and we shall not expect to be treated as gentlemen but as true apprentices who are not in it for laughs. Why should we not go the whole way? Czar Peter was a carpenter in the workyard and a drummer for his own troops. Do you think this prince is not your equal in birth or merit? You understand that it is not to Emile that I say this. It is to you, whoever you may be.

Unhappily we cannot spend all of our time at the workbench. We are not only apprentice workers, we are apprentice men; and the apprenticeship in this latter trade is harder and longer than in the former one. How will we do it then? Shall we hire a master of the plane one hour a day as one hires a dancing master? No, for then we would be not apprentices but disciples, and our ambition is not so much to learn carpentry as to raise ourselves to the station of carpenter. Therefore, I am of the opinion that we must go at least once or twice a week and spend the whole day at the master's—that we get up at his hour, be at work before him, eat at his table, work under his orders, and after having had the honor of supping with his family, return, if we wish, to sleep in our hard beds. That is how several trades are learned at once and how one gets practice in manual labor without neglecting the other apprenticeship.

Let us be simple in doing good. Let us not go and reproduce vanity by our efforts to combat it. To pride oneself on having conquered prejudices is to be subjected to them. It is said that, by an ancient practice of the Ottoman house, the great lord is obliged to work with his hands; and everyone knows that the works of a royal hand can only be masterpieces. He therefore distributes magnificently these masterpieces to the nobles of the Porte,[22] and the work is paid for according to the quality of the worker. The evil I see in this is not the alleged harassment; that, on the contrary, is a good thing. By forcing the nobles to share with him the spoils taken from the people, the prince is that much less obliged to pillage the people directly. It is a relief necessary to despotism without which this horrible government would not be able to subsist.

The true evil of such a practice is the idea of his merit which it

gives to this poor man. Like King Midas he sees everything he touches turn into gold, but he does not perceive what ears grow as a result.[23] To preserve short ones for our Emile, let us protect his hands from that rich talent. Let the value of what he makes be drawn not from the worker but from the work. Let us never allow his work to be judged except by comparing it to that of good masters; let his work be valued for the work itself and not because it is his. Say of what is well made, "This is well made." But do not add, "Who made that?" If he himself says with a proud and self-satisfied air, "I made it," add coldly, "You or another, it makes no difference; in any event it is work well done."

Good mother, protect yourself above all against the lies which are prepared for you. If your son knows many things, distrust everything he knows. If he has the misfortune of being raised in Paris and of being rich, he is lost. So long as there are skillful artists there, he will have all their talents; but far away from them, he will no longer have any. In Paris the rich man knows everything; the only ignoramus is the poor man. This capital is full of amateurs, especially among the ladies, who produce their work as M. Guillaume contrived his colors.[24] I know of three honorable exceptions to this among men; there may be more. But I know of none among women, and I doubt that there are any. In general, one gets a name in the arts as in the law; one becomes an artist and judges artists as one becomes a doctor of law and a magistrate.

If, therefore, it were once established that it is a fine thing to know a trade, your children would soon know one without learning it. They would pass as masters like the Councillors of Zurich.[25] None of this ceremony for Emile—no appearance and always reality. Let it not be said that he knows, but let him learn in silence. Let him always produce his masterpiece and never pass for a master; he should prove himself a worker not by his title but by his work.

If I have made myself understood up to now, one should conceive how I imperceptibly give my pupil, with the habit of exercising his body and of manual labor, the taste for reflection and meditation. This counterbalances in him the idleness which would result from his indifference to men's judgments and from the calm of his passions. He must work like a peasant and think like a philosopher so as not to be as lazy as a savage. The great secret of education is to make the exercises of the body and those of the mind always serve as relaxations from one another.

But let us avoid beginning too soon instruction which demands a riper spirit. Emile will not be a worker for long without experiencing for himself the inequality of conditions which he had at first only glimpsed. On the basis of the maxims I give him—maxims which are within his reach—he will want to examine me in my turn. In receiving everything from me alone, in seeing himself so close to the state of the poor, he will want to know why I am so far from it. He will perhaps catch me unprepared and ask ticklish questions. "You are rich, you told me so, and I see it. A rich man also owes his work to society, since he is a man. But you, what do you then do for it?" What would a fine governor say to that? I do not know. He would perhaps be fool enough to speak

to the child of the care he takes of him. As for me, the workshop gets me out of it. "That is, dear Emile, an excellent question. I promise you to answer concerning my case when you give an answer with which you are satisfied concerning your own case. In the meantime I shall take care to give to you and the poor what surplus I have and to produce a table or a bench every week so as not to be completely good for nothing."

Now we have returned to ourselves. Now our child, ready to stop being a child, has become aware of himself as an individual. Now he senses more than ever the necessity which attaches him to things. After having begun by exercising his body and his senses, we have exercised his mind and his judgment. Finally, we have joined the use of his limbs to that of his faculties. We have made an active and thinking being. It remains for us, in order to complete the man, only to make a loving and feeling being—that is to say, to perfect reason by sentiment. But before entering this new order of things, let us cast our eyes on the one we are leaving and see as exactly as possible where we have gotten.

At first our pupil had only sensations. Now he has ideas. He only felt; now he judges; for from the comparison of several successive or simultaneous sensations and the judgment made of them is born a sort of mixed or complex sensation which I call an idea.

The manner of forming ideas is what gives a character to the human mind. The mind which forms its ideas only on the basis of real relations is a solid mind. The one satisfied with apparent relations is a superficial mind. The one which sees relations such as they are is a precise mind. The one which evaluates them poorly is a defective mind. The one which makes up imaginary relations that have neither reality nor appearance is mad. The one which does not compare at all is imbecilic. The greater or lesser aptitude at comparing ideas and at finding relations is what constitutes in men greater or lesser intelligence, etc.

Simple ideas are only compared sensations. There are judgments in simple sensations as well as in the complex sensations which I call simple ideas. In sensation, judgment is purely passive. It affirms that one feels what one feels. In perception or idea, judgment is active. It brings together, compares, and determines relations which the senses do not determine. This is the entire difference, but it is great. Nature never deceives us. It is always we who deceive ourselves.

I see an eight-year-old child served ice cream. He brings the spoon to his mouth without knowing what it is, and, surprised by the cold, shouts, "Oh, it's burning me!" He experiences a very lively sensation. He knows of none livelier than the heat of fire, and he believes he feels that one. However, he is mistaken. The chill of the cold hurts him, but it does not burn him, and these two sensations are not similar, since those who have experienced both do not confound them. It is not, therefore, the sensation which deceives him but the judgment he makes about it.

It is the same for someone who sees a mirror or an optical gadget for the first time, or who goes into a deep cellar in the heart of winter or summer, or who dips a very hot or very cold hand in tepid water, or who rolls a little ball between two crossed fingers, etc. If he is satisfied

with saying what he perceives, what he feels, with his judgment remaining purely passive, it is impossible that he be deceived. But when he judges a thing by its appearance, he is active, he compares, and he establishes by induction relations he does not perceive; then he is deceived or can be deceived. To correct or prevent the error, he needs experience.

Show your pupil at night clouds passing between him and the moon. He will believe that it is the moon passing in the opposite direction and that the clouds are stationary. He will believe it as a result of a hasty induction, because he ordinarily sees little objects moving instead of large ones, and the clouds seem larger to him than the moon, whose distance he cannot estimate. When he is in a drifting boat and looks at the shore from a little way off, he falls into the opposite error and believes he sees the land gliding by. Not sensing that he is in motion, he regards the boat, the sea or the river, and his whole horizon as an immobile whole, of which the shore he sees gliding by seems to him only a part.

The first time a child sees a stick dropped halfway in water, he sees a broken stick. The sensation is true, and it would not fail to be so even if we did not know the reason for this appearance. Therefore, if you ask him what he sees, he says, "A broken stick"—and what he says is true, for it is quite certain he has the sensation of a broken stick. But when, deceived by his judgment, he goes farther and, after affirming that he sees a broken stick, he affirms in addition that what he sees actually is a broken stick, then what he says is false. Why is that? Because then he becomes active and no longer judges by inspection, but rather by induction, in affirming what he does not sense—that is, that the judgment he receives from one sense would be confirmed by another.

Since all our errors come from our judgments, it is clear that if we never needed to judge, we would not need to learn. We would never be in a position to be deceived. We would be happier with our ignorance than we can be with our knowledge. Who denies that the learned know countless true things which the ignorant will never know? Are the learned thereby closer to the truth? On the contrary, they get farther from it in advancing; because the vanity of judging makes even more progress than enlightenment does, each truth that they learn comes only with a hundred false judgments. It is entirely evident that the learned companies of Europe are only public schools of lies. And there are very certainly more errors in the Academy of Sciences than in a whole nation of Hurons.

Since the more men know, the more they are deceived, the only means of avoiding error is ignorance. Do not judge, and you will never be mistaken. That is the lesson of nature as well as of reason. Beyond the immediate relations—very small in number and very easily sensed—which things have to us, we naturally have only a profound indifference toward all the rest. A savage would not take a step out of his way to go and see the working of the finest machine and all the wonders of electricity. "Of what importance is it to me?" is the phrase most familiar to the ignorant man and most suitable for the wise one.

But unhappily this phrase does not work for us anymore. Everything is important for us, since we are dependent on everything; and our curiosity necessarily extends with our needs. That is why I attribute very great curiosity to the philosopher and none at all to the savage. The latter needs no one; the former needs everyone and especially admirers.

I will be told that I abandon nature. I do not believe that at all. It chooses its instruments and regulates them according to need, not to opinion. Now, needs change according to the situation of men. There is a great difference between the natural man living in the state of nature and the natural man living in the state of society. Emile is not a savage to be relegated to the desert. He is a savage made to inhabit cities. He has to know how to find his necessities in them, to take advantage of their inhabitants, and to live, if not like them, at least with them.

Amidst so many new relations on which he is going to depend, he will, in spite of himself, have to judge; let us teach him, therefore, to judge well.

The best way to teach someone to judge well is the one which tends to simplify our experiences and even to make us able to omit them without falling into error. From this it follows that after having for a long time verified the relations of one sense by another, one still has to learn to verify the relations of each sense by itself without need of recourse to another sense. Then each sensation will become an idea for us, and this idea will always conform to the truth. This is the sort of accomplishment with which I have tried to fill this third age of human life.

This way of proceeding demands a patience and a circumspection of which few masters are capable, and without which the disciple will never learn to judge. If, for example, he is deceived about the appearance of the broken stick, and to show him his error you are in a hurry to pull the stick out of the water, you will perhaps undeceive him. But what will you teach him? Nothing but what he would soon have learned by himself. Oh, it is not that which has to be done! The goal is less to teach him a truth than to show him how he must always go about discovering the truth. In order to instruct him better, you must not undeceive him so soon. Let us take Emile and me as an example.

In the first place, every child raised in the ordinary way will not fail to answer affirmatively the second of the two questions posed above. "It is surely a broken stick," he will say. I doubt very much that Emile would give me the same answer. Not seeing the necessity of being learned, or of appearing to be, he is never in a hurry to judge. He judges only on the basis of evidence, and he is far removed from finding it on this occasion—he who knows how much our judgments about appearances are subject to illusion, be it only the illusion of perspective.

Moreover, since he knows by experience that my most frivolous questions always have some object that he does not perceive at first, he has not gotten the habit of answering them lightly. On the contrary, he is distrustful of them. He is attentive to them. He examines them with great care before responding to them. He never gives me a response with which he himself is not satisfied, and he is difficult to sat-

isfy. Finally, we both pride ourselves not on knowing the truth of things but only on not falling into error. We would be far more embarrassed at contenting ourselves with a reason which is not good than at not finding one at all. "I don't know" is a phrase which goes over so well with both of us and which we repeat so often that it no longer costs either of us a thing. But whether he blurts out this lightheaded answer or avoids it with our convenient "I don't know," my reply is the same, "Let's see, let's examine it."

The stick, half dipped in water, is fixed in a perpendicular position. To know if it is broken, as it appears to be, how many things must we do before drawing it from the water or putting a hand to it?

1. First we walk all around the stick, and we see that the break turns as we do. Therefore, it is our eye alone which changes it, and glances do not move bodies.

2. We look from straight above at the end of the stick which is out of the water. Then the stick is no longer curved. The end near our eye exactly hides the other end from us.[26] Did our eye straighten out the stick?

3. We stir the water's surface. We see the stick fold up in many pieces, move in zigzags, and follow the undulations of the water. Does the movement we give to this water suffice to break, soften, and thus dissolve the stick?

4. We let the water flow out, and we see the stick straighten out little by little as the water goes down. Is this not more than enough for clarifying the fact and discovering refraction? Then it is not true that sight deceives us, since we need nothing but it alone to rectify the errors we attribute to it.

Let us suppose that the child is stupid enough not to sense the result of these experiences. It is then that touch must be called to the aid of sight. Instead of pulling the stick out of the water, leave it in its position, and let the child run his hand from one end to the other. He will not feel an angle. Therefore, the stick is not broken.[27]

You will tell me that there are not only judgments here but formal reasonings. It is true. But do you not see that as soon as the mind has gotten as far as ideas, every judgment is a reasoning? The consciousness of every sensation is a proposition, a judgment. Therefore, as soon as one compares one sensation with another, one reasons. The art of judging and the art of reasoning are exactly the same.

I would prefer that Emile never know dioptrics if he cannot learn it around this stick. He will not have dissected insects; he will not have counted the spots on the sun. He will not know what a microscope and a telescope are. Your learned pupils will make fun of his ignorance. They will not be wrong; for before he uses these instruments, I intend him to invent them. And you may well suspect that this will not come so soon.

This is the spirit of my whole method in this part. If the child rolls a little ball between two crossed fingers and believes he feels two balls, I shall not permit him to look at it before he is convinced there is only one.

These clarifications will suffice, I think, to show distinctly the prog-

ress of my pupil's mind up to now and the route by which he made this progress. But you are perhaps frightened off by the multitude of things I have caused to pass before him. You are afraid that I am overwhelming his mind with this quantity of knowledge. On the contrary, I teach him far more to be ignorant of these things than to know them. I show him the route of science—easy, it is true, but long, immense, slow to traverse. I make him take the first steps so that he recognizes the way in, but I never permit him to go far.

Forced to learn by himself, he uses his reason and not another's; for to give nothing to opinion, one must given nothing to authority, and most of our errors come to us far less from ourselves than from others. From this constant exercise there ought to result a vigor of mind similar to the vigor given to bodies by work and fatigue. Another advantage is that one advances only in proportion to one's strength. The mind, no less than the body, bears only what it can bear. When understanding appropriates things before depositing them in memory, what it draws from memory later belongs to it; whereas, by overburdening memory without the participation of understanding, one runs the risk of never withdrawing anything from memory suitable for understanding.

Emile has little knowledge, but what he has is truly his own. He knows nothing halfway. Among the small number of things he knows and knows well, the most important is that there are many things of which he is ignorant and which he can know one day; there are many more that other men know that he will never know in his life; and there are an infinite number of others that no man will ever know. Emile has a mind that is universal not by its learning but by its faculty to acquire learning; a mind that is open, intelligent, ready for everything, and, as Montaigne says, if not instructed, at least able to be instructed.[28] It is enough for me that he knows how to find the "what's it good for?" in everything he does and the "why?" in everything he believes. Once again, my object is not to give him science but to teach him to acquire science when needed, to make him estimate it for exactly what it is worth, and to make him love the truth above all. With this method one advances little, but one never takes a useless step, and one is not forced to go backward.

Emile has only natural and purely physical knowledge. He does not know even the name of history, or what metaphysics and morals are. He knows the essential relations of man to things but nothing of the moral relations of man to man. He hardly knows how to generalize ideas and hardly how to make abstractions. He sees common qualities in certain bodies without reasoning about these qualities in themselves. He knows abstract extension with the aid of the figures of geometry, and he knows abstract quantity with the aid of the signs of algebra. These figures and these signs are the supports of the abstractions on which his senses rest. He seeks to know things not by their nature but only by the relations which are connected with his interest. He estimates what is foreign to him only in relation to himself. But this estimation is exact and sure. Whim and convention count for nothing in it. What is more useful to him, he takes more seriously; never deviating from this way of evaluating, he grants nothing to opinion.

Emile is laborious, temperate, patient, firm, and full of courage. His imagination is in no way inflamed and never enlarges dangers. He is sensitive to few ills, and he knows constancy in endurance because he has not learned to quarrel with destiny. With respect to death, he does not yet know well what it is; but since he is accustomed to submitting to the law of necessity without resistance, when he has to die, he will die without moaning and without struggling. This is all that nature permits at this most abhorred of all moments. To live free and to depend little on human things is the best means of learning how to die.

In a word, of virtue Emile has all that relates to himself. To have the social virtues, too, he lacks only the knowledge of the relations which demand them; he lacks only the learning which his mind is all ready to receive.

He considers himself without regard to others and finds it good that others do not think of him. He demands nothing of anyone and believes he owes nothing to anyone. He is alone in human society; he counts on himself alone. More than anyone else, he has the right to count on himself, for he is all that one can be at his age. He has no errors, or only those that are inevitable for us. He has no vices, or only those against which no man can guarantee himself. He has a healthy body, agile limbs, a precise and unprejudiced mind, a heart that is free and without passions. *Amour-propre*, the first and most natural of all the passions, is still hardly aroused in him. Without troubling the repose of anyone, he has lived satisfied, happy, and free insofar as nature has permitted. Do you find that a child who has come in this way to his fifteenth year has wasted the preceding ones?

End of the Third Book

1. Emile learns Ptolemaic astronomy because it is the observation of common sense. Copernican astronomy will follow when he himself makes the observations which lead to it.

2. "A skeleton celestial globe or sphere, consisting merely of metal rings or hoops

representing the equator, ecliptic, tropics, arctic and antarctic circles, and colures, revolving on an axis within a wooden horizon" (*Oxford English Dictionary*, s. v. "armillary"). Rousseau evidently had used ones made of cardboard, not metal.

3. ". . . two great circles which intersect each other at right angles at the poles, and divide the equinoctial and the ecliptic into four equal parts. One passes through the equinoctial points, the other through the solstitial points of the ecliptic" (*Oxford English Dictionary*, s. v. "colures").

4. The distinction between the analytic and synthetic ("resolutive" and "compositive") methods, found in Galileo and Hobbes, was given its best-known formulation by Descartes (*Meditations, Second Responses*, final four pages). It is closely related to the distinction between induction and deduction familiar to more recent discussion of scientific method, although Rousseau avoids using these latter terms.

According to Aristotle (*Nic. Ethics* 1095a 31ff), it was Plato who taught us to distinguish between beginning with what is first to us and ascending ("analytically") to first principles, and beginning with first principles and descending ("synthetically"). This difference is mirrored in Descartes' distinction between beginning with parts (or what is "better known to us"—e.g. the ego cogitans) and beginning with wholes. Here it is found in the movement from the child's home to the cosmic system (analysis), and the movement from the cosmic system to the child's home (synthesis).

Descartes argues for the superiority of the analytic method on both pedagogic and philosophic grounds. For him it is the way of instruction and the way of discovery (although Rousseau here identifies synthesis with the method of instruction), and therefore only it contents the philosophic student. The synthetic ("Euclidean," syllogistic) procedure, on the other hand, is best able to convince or silence the inattentive or hostile student. Yet a simple disjunction between the analytic and synthetic mode is untenable. Beginning with the part, or what is first or most knowable to us, is impossible without some concept of the whole, at least the whole of human knowledge accessible to us. And this is evident from the actual philosophic procedures of a Descartes or a Plato, or from the empiricism of Locke and Condillac known to Rousseau.

He therefore judiciously mixes the modes without making explicit to his pupil his varying procedure. The child who was taught solid geometry by cakes would be a good example of this. In the end his systematic knowledge of the science would indicate that a certain solid would contain more cake, and his experience, or his stomach, would confirm this fact. And the experience would lead to the discovery of the principle. These are the reciprocal proofs of which Rousseau speaks. He tries to combine the philosopher's method with the child's of p. 172 below. The combination of the two methods, and their meeting point, is further used in the discovery of the compass immediately following and in Emile's discovery of the use of astronomy for getting his lunch. Finally, the entire education is a model of this union: the production of a man who can move by sound reasoning from his experience and needs to their place in the whole, and who, knowing the whole, finds his place within it, like the insect in his web. (cf. p. 80–81 above).

In this Rousseau differs from the r[illegible] science's single-minded concentration on discovery and returns to reflection on the "bottomless sea" of which he speaks on this page. (I am grateful to Richard Kennington for his help with this note.)

5. A meridian here is simply a north-south line. In the northern hemisphere, the sun is due south at high noon, so that a shadow cast by a stake points due north. Shadows of equal length are cast by a stake in the morning and evening at times equally distant from noon; and the north-south line (as also the shadow at noon) bisects the angle formed by any such pair of shadows. There are several ways of obtaining this bisector; what Rousseau has in mind here is the construction of a rhombus where one morning shadow and two evening shadows of the same length as the first form the sides. The fourth side can be easily supplied. The diagonal at right angles to the course of the sun is the meridian.

6. Rousseau added a note for the next edition in response to a man who had written an *Anti-Emile*. "I could not keep from laughing in reading a subtle critique of this little tale by M. de Formey. 'This magician,' he says, 'who prides himself on his emulation with a child and gravely sermonizes his teacher is an individual of the world of Emiles.' The clever M. de Formey was unable to suppose that this little scene was arranged and that the magician had been instructed about the role he had to play; for, indeed, I did not say so. But on the other hand, how many times have I declared that I did not write for people who have to be told everything?"

7. Cf. p. 111.

8. Cf. Plato *Phaedrus* 274C–275D. The god Theuth there mentioned was identified with Hermes.

9. In the manuscript Rousseau had originally continued, "for although this state is not that of social man, it is by it that he ought in truth to evaluate all the objects of his esteem."

10. "I want only those good things which are envied by the people." Petronius *Satyricon* 100. The context concerns love.

11. The identity of this person is unknown.

12. Parisian jewelers.

13. *Discourse on the Origins of Inequality,* as Rousseau himself indicated in a later note. Cf. particularly, O.C. III, p. 164, 173–178; R. Masters, ed., *The Discourses,* pp. 141–142, 154–160. See also *Discourse on Political Economy* and Plato *Republic* 369B–373E.

14. These two examples are drawn from Plutarch's lives of *Timoleon* and *Aemilius Paulus,* a parallel pair. Dionysius the younger, Plato's pupil, is described in *Timoleon* 14–16. Aemilius Paulus, whose namesake Emile possibly is (see Preface, note 1 above), conquered Perseus, king of Macedon, and his son ended as Rousseau says (*Aemilius Paulus* 37). The entire context beginning with 27 should be considered as well as the comparison between Timoleon and Aemilius. Plutarch judges that Aemilius is the more perfect because he was unbroken by bad fortune in the loss of his children.

15. This obscure Vonones was, on the request of the Parthian people, installed as king by Augustus around 8 A.D. They soon rejected him. His story is to be found in Tacitus *Annals* II 1–4, 58, 68. I do not find a source for his father's being called a "king of kings." The manuscript indicates that Rousseau intended to mention the Stuart pretender living in France, but he decided against it, evidently on prudential grounds.

16. Cf. *Dreams of a Solitary Walker* VI, end, where Rousseau speaks of himself as a useless member of society.

17. Swiss were frequently used in France in domestic service and became synonymous with it.

18. Locke too believed that a trade should be learned, but the spirit of his instruction is very different as is the style of his presentation. *Some Thoughts,* in Axtell, ed., *Locke's Educational Writings,* paragraphs 201–210.

19. The Abbé de Saint Pierre, cf. I, note 28 above.

20. "Few women wrestle, few eat the athlete's food; you spin wool, and when the work is finished, you carry it in baskets."

21. The trade of Spinoza, whose example might well be contemplated for this whole segment.

22. The Ottoman court at Constantinople.

23. Rousseau combines the stories of Midas' golden touch and his ass's ears, given him by Apollo when Midas, as judge, chose Marsyas over Apollo in their musical contest.

24. A dupe in the famous French farce, Maître Patelin. This is another *Crow and Fox* story. M. Guillaume is a cloth manufacturer who is done out of some cloth by Patelin. According to L. J. Courtois (*Annales J. J. Rousseau,* vol. XXII, 242–243), Rousseau is referring to a version of the story by the Abbé D. A. de Brueys, *L'Avocat Patelin,* in which Patelin, flattering Guillaume, says, "M. Guillaume, I bet you thought up that color." To which the latter responds, "Oh yes, I and my dyer."

25. The political power of the guilds at Zurich was such that it was difficult to become a member of the city council without being a master craftsman from one of them. Rousseau indicates that the system had been corrupted and that the status of master now came from holding the office rather than practicing the art.

26. In a note for the next edition Rousseau wrote: "I have since found the opposite by a more exact experiment. Refraction acts circularly, and the end of the stick in the water appears larger than the other end. But that changes nothing of the force of the reasoning, and the conclusion is no less exact."

27. Compare Plato *Republic* X 602B–E for the same example. The liberation from the illusion is the intention of both authors but the means are radically different. Rousseau believed that the senses could correct the senses and hence that Platonic transcendence can be avoided along with the illusion of the senses. He indicated in a first draft of this passage that he followed, although improved upon, the Epicureans in their respect for the senses.

28. Montaigne *Essays* II 27.